Gender Mainstreaming and Impact of Self Help Groups in Marine Fisheries Sector






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PROJECT REPORT

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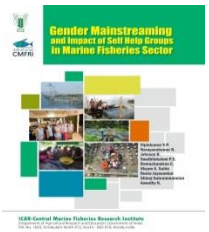

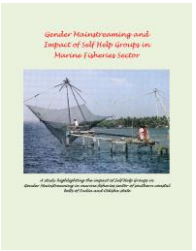

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Foreword...

Fisheries sector provides employment to over 12 million people and plays a paramount role in Indian economy. Women constitute nearly half of the population and one third of the labour force. Though women's role in Indian marine fisheries sector with a coast line of 8129 km is very prominent, there is generally a gender bias in respect of their works and the inequalities between men and women are observed in the social, cultural and economic lives. The development and empowerment of weaker sections and gender mainstreaming in the Indian fisheries sector in a broader visualization will be materialized to a substantial extent with poverty eradication programmers through the transparent media namely Self Help Groups (SHGs). However an in-depth analysis of the impact of SHGs in bringing out gender mainstreaming was lacking in the present scenario of Indian marine fisheries sector. Integrating gender perspective in SHG ventures in marine fisheries sector is inevitable because the gender mainstreaming approach advances gender equity and equality in the fisheries fabric of the society.

The untiring perseverance of CMFRI as the premier Marine Fisheries Research Institute for more than seven decades of dedicated service in marine fisheries research brought out the ways and means to sustain the potential source of food in capture and culture fisheries scenario of the country. As the authentic data are scarce on impact of SHGs in gender mainstreaming among marine fisherfolk, it was imperative to make an effort to study he gender dimension of SHGs in marine fisheries sector as a project under the leadership of Dr.Vipinkumar.V.P, Principal Scientist of CMFRI. The importance of the study in this regard was on assessing the impact of selected SHGs, studying the extent of empowerment of selected SHGs in terms of gender mainstreaming and identifying the relevant fishery based micro enterprises catering to the location specific needs of fisherfolk and imparting the Entrepreneurial Capacity Building (ECB) Training in fisheries sector by appropriate HRD intervention programmes and documenting the success cases of SHGs.The marine production front with a total landing of 3.54 million tonnes is maintaining its economic vibrancy. The completion of the Marine Census 2015 once again proves our competence in undertaking such nationwide exercises. As this project was undertaken in 5 maritime states, on gender mainstreaming and impact of SHGs, it gives a highlight on success stories of SHGs on ECB which significantly played the role in the poverty alleviation. I appreciate the effort of the authors to bring out this compilation.

(A.Gopalakrishnan, Director, CMFRI)

Preface...

Presently CMFRI, celebrating its 'Platinum Jubilee' after serving the Indian marine fisheries sector for seven decades, has emerged as a leading tropical marine fisheries research institute in the world, with an unparalleled research acumen, untiring perseverance and unbridled commitment which helped in boosting the marine fish production and management of the fisheries sector and for the livelihood of 40 lakh fisherfolk (9 lakhs households) of the country. In the meantime, out of the 9 lakh fisheries families, as almost 8 lakhs belongs to traditional sector and this sector contributes hardly 2 per cent of the 3.52 million tonnes of fish catch, the rest 98 per cent is the contribution of mechanized and motorized sectors. This is a thought provoking issue that a deep consideration must be given to this traditional fisheries sector and here comes the relevance of the Self Help Groups and gender mainstreaming strategies.

Gender mainstreaming is the strategy of bringing about equity and equality in all the spheres of development. For bringing about equity and equality to both men and women, it is quite imperative that, the women are to be brought to the limelight in promotion of micro enterprises for livelihood avenues.

Experiences and observations so far indicated that 'Women Empowerment' will practically materialize through the broad concept of Self Help Groups (SHGs). That is why out of the 40 lakhs SHGs existing in the country, 97 per cent belongs to those of women. For the present study, the impact of SHGs on gender mainstreaming was assessed though the access to resources, participation profile & gender needs analysis of the SHG members by personal interview with the men and women counterparts of the families separately with a with a pre-tested and standardized data collecting protocol in the maritime states such as Kerala, Karnataka, Tamil Nadu, Andhra Pradesh and Odisha. The Level of Performance and extent of empowerment of SHGs were assessed by developing appropriate scales and indices. As much as 750 SHGs were studies intensively and stage by stage video documentation of the success case studies was also undertaken. A series of products like animation films, training modules, pamphlets, bulletins, flyers and a compilation of around 20 movies as gender mainstreaming series, ICT modules etc. were brought out as deliverable outputs of the study which can be used as case models or practical manual for group action for mobilizing SHGs on a sustainable basis.

(Vipinkumar V.P. & Project Team)

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CHAPTER 1

Genesis, Rationale and beyond

Genesis, Rationale and Beyond

Speaking the genesis of the terminology of 'Gender Mainstreaming', it is quite obvious as the current international approach to advancing gender 'equity' and 'equality' in society. Equity is a means and equality is a result. Gender mainstreaming is a strategy first articulated by ECOSOC (United Nation's Economic and Social Council) in 1997 with GAD (Gender and Development) goals and a commitment to gender equity and equality in all aspects of policies, plans, programme design and Implementation. The rationale is that, it involves incorporating gender perspective into all programmes to ensure that these impact on women and men in an equitable way. It aims to transform the 'mainstream' at all levels to end gender discrimination.

'Sex' refers to the biological differences between women and men i.e., people are born female or male, with different bodies and different chemistry. 'Gender' refers to the socially constructed difference between women and men and how they are expected to think and behave as women and men which differs from one culture and society to another, changes over time. Equity means justice so that resources are fairly distributed taking into account the different needs of women and men, girls and boys. 'Equality' is rights- based i.e. women and men have equal rights, enshrined in international standards and treaties and should have the same entitlements and opportunities.

In India, fisheries sector provides employment to over 12 million people engaged fully, partially or in subsidiary activities and play a major role in Indian economy. Women constitute nearly 50 % of the total population and one third of the labour force (32.5%). Though women's role in Indian fisheries sector is very significant, there is a gender bias in respect of their works and the inequalities between men and women in rural India are observed in the social, cultural and economic lives and are being maintained in the society though various forms of bias.

The development and empowerment of weaker sections and gender mainstreaming in the Indian fisheries sector in a broader visualization will be materialized to a great extent with poverty eradication programs though the transparent media namely Micro Finance institutions / Self Help Groups. The Self Help Groups mobilized in marine fisheries sector do play a paramount and significant role in reducing the level of indebtedness among marine fisher folk. However an in-depth analysis of the impact of SHGs in bringing out gender mainstreaming is lacking in the present scenario of Indian marine fisheries sector. Integrating gender perspective in microfinance ventures in marine fisheries sector is inevitable because the gender mainstreaming approach advances gender equality and equity in the fisheries fabric of the society.

Though women's role in Indian fisheries sector is very significant, there is a gender bias in respect of their works and the inequalities between men and women in rural India are observed in the social, cultural and economic lives and are being maintained in the society though various forms of bias. The advantage of integrating the gender perspective in Mariculture and marine fisheries microfinance enterprises and technology development is that, it allows for the advancement of gender equality and equity regardless of whether it is women or men who are disadvantaged or whose position needs to be addressed and thereby identifies the areas where progress is lagging and highlights the need for intervention in specific areas in policy making and planning in marine fisheries technology development. The present project aims to fulfill this need.

Technology gap and justification for the study and questions to be answered

The available research information on the extent of gender mainstreaming in marine fisheries sector is meager and same is the situation on the studies on impact of Self Help Groups in mainstreaming the gender perspective. There are several relevant fisheries based and allied sector based micro enterprises catering to the location specific needs of women stakeholders to impart the Entrepreneurial Capacity Building Training on the identified micro enterprises in fisheries sector for gender empowerment and to save women fisher folk from debt trap and poverty. The quantification of the extent of

empowerment of these SHGs and thereby imparting training by appropriate HRD intervention programs to the weak and vulnerable SHGs is feasible in the marine fisheries sector throughout the coastal belts which can elucidate success stories of SHG mobilization. These can in turn be used as case model and practical manual for promoting group action for mobilizing SHGs on a sustainable basis.

The basic questions to be addressed by the study are

- What is the extent of impact of 'Self Help Groups' in gender mainstreaming paradigm of fishery based technologies in marine fisheries sector.
- What is the extent of empowerment of selected Self Help Groups in terms of gender mainstreaming measurable through appropriate indices of measurement identified.
- What are the relevant fisheries based and allied sector based micro enterprises catering to the location specific needs of women stakeholders and to what extent we can impart the Entrepreneurial Capacity Building Training on the identified micro enterprises in fisheries sector by appropriate HRD intervention programs to the weak and vulnerable SHGs.
- How can we document the success cases of entrepreneurial capacity building of Self Help Groups through cyber extension modules with special reference to gender perspective for entrepreneurial technical training and extension in marine fisheries sector with special emphasis on gender mainstreaming?

The Theoretical Orientation and Critical review of present status of the technology at national and international levels

Reviews of International Perspective

The concept of bringing gender issues into the mainstream of society was clearly established as a global strategy for promoting gender equality in the Platform for Action adopted at the United Nations Fourth World Conference on Women, held in Beijing (China) in 1995. Gender refers to as the social

attributes and opportunities associated with being male and female and the relationships between women and men and girls and boys, as well as the relations between women and those between men. These attributes, opportunities and relationships are socially constructed and are learned through socialization processes. Mainstreaming a gender perspective is the process of assessing the implications for women and men of any planned action, including legislation, policies or programs, in all areas and at all levels. It is a strategy for making women's as well as men's concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programs in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated. The ultimate goal is to achieve gender equality. (ECOSOC, 1997).

The FAO State of Food and Agriculture 2010-11 reports, showed that if female farmers had the same access as male farmers to agricultural inputs and services, they could substantially increase the yields on their farms. A World Bank report concluded that reducing gender inequality leads to falling infant and child mortality, improved nutrition, higher economic productivity and faster growth. For the global community, gender equality is also a commitment, embedded in international human rights agreements and in the United Nations Millennium Development Goals. (FAO 2010-2011).

Carolyn Hannan (2003) found that GM was established as a strategy for promoting the achievement of gender equality because of the failure of previous strategies. Awareness of these constraints led to the integration strategy which attempted to address the issue of marginalization by incorporating "women's perspectives" into policy development and project design and implementation.

Less has been done in terms of ensuring adequate attention to gender perspectives in mainstream sector policies, i.e. in existing policies on water, energy, entrepreneurship, macro-economic development. UNDP reported that, India's poor performance on women's empowerment and gender equality is reflected in many indicators. In many parts of the country, sex ratio has dropped to fewer than 850 females per 1000 males. India is ranked

132 out of 148 countries on Gender Inequality Index as per the 2013 Global Human Development Report.

UNDP reported that, India missed the 2005 deadline of eliminating gender disparity in primary and secondary education. However, the country has hastened progress and the Gender Parity Index (GPI) for Gross Enrolment Ratios (GER) in primary and secondary education. Given current trends, India is moderately or almost nearly on track. However, as the Government of India MDG Report 2009 notes, participation of women in employment and decision-making remains far less than that of men, and the disparity is not likely to be eliminated by 2015.

Lombardo Emanuela (2005) of European Union (EU) constitution has adopted an "integrating" rather than an "agenda-setting" approaching to gender mainstreaming. Five indicators of application of mainstreaming will serve as a reference point for exploring how it has been applied in EU constitutional convention: a broader concept of gender equality, the incorporation of a gender perspective in to mainstream, equal representation of women, the prioritization of gender policy objectives, and a shift in institutional and organizational culture.

Jacqui (2010) claimed that GM does not end in simply increasing the number of women within a specific institution and is about changing social consciousness, so the effects of a policy for both women and men are truly analyzed before they are implemented. Mangheni *et al*. (2010) noted a series of gender issues in agricultural education and training. First and foremost were socio-cultural factors, such as family expectations, societal images Gender issues in agriculture that relate to FARA's programs 27and gender stereotypes that act as key barriers to girls' and women's access to education in general.

In the project on microcredit for women (example of a gender-integrated project) the objective was to enhance the skills, productivity, and income of beneficiaries in the project area. Women in the project area did not normally have access to institutional financing for improving their household, social, and economic welfare. Credits were used to encourage women to form and remain in groups organized around productive activities.

The Society for Participatory Research in Asia (PRIA) has carried out activities in GM with a view to creates and promotes a gender friendly environment within organizations and to develop a strong GM thrust in its programs. PRIA conceived several strategies which guided various interventions during this period such as documentation of gender sensitive practices and policies in organizations which formed the basis for future institutional interventions in partner organizations and in other civil society organizations, identification of developed and built capacities of dedicated gender focal points and facilitators who could champion gender mainstreaming in organizations and programmatic interventions at all levels, facilitation of educational and awareness raising interventions in the form of workshops and seminars on gender sensitization and sexual harassment at the workplace, generation of new knowledge through participatory research on gender mainstreaming in institutions of governance (with a focus on local governance) and civil society and preparation of customized training modules and published educational materials on gender mainstreaming and sexual harassment for the PRIA workplace, its partners and other civil society organizations. William *et al* (1995) traced the sequence of events leading to the involvement of the Asian Fisheries Society and ICLARM-The World Fish Center, in the Women in Fisheries program and to the move towards Gender and Fisheries initiatives. Some gender issues besetting the fisheries sector highlighted in the paper include: poverty; division of household labor; health; access to education and other rights; organizational culture; and raising awareness and sharing knowledge. A study in Malaysia showed in general, women were paid less and also burdened with household work. The involvement of women was mostly observed in family enterprises and in some specific jobs, for e.g., fish processing industry and hatcheries which were considered the female jobs. Women's labor was seen as a significant contribution in poor households which did not have the capacity to hire labor from outside. This is also supported by other studies in Asia that indicate women's crucial role in Aquaculture production. For example in parts of Vietnam and Cambodia, higher yields were obtained from fish ponds managed mainly by women (Nandeesha, 1994).

The predominant microfinance model of lending to the poor, especially women, through group collateral has significant association with the

utilization of commons. Gender analysis is a tool to diagnose the differences between women and men regarding their specific activities, conditions, needs, access to and control over resources, and access to development benefits and decision-making. It studies the linkages of these and other factors in the larger social, economic, political and environmental context. (ILO, 2000)

UNESCO (2000) has a three-pronged approach to women's empowerment and gender equality consists of, GM perspective in all policy planning, programming, implementation and evaluation activities; promoting the participation of women at all levels and fields of activity, giving particular attention to women's own priorities and perspectives in redefining both the goals and means of development; and developing specific programs and activities for the benefit of girls and women, particularly those that promote equality, endogenous capacity-building and full citizenship.

The overall objective of the GM Guidelines is to serve as a practical tool for incorporating gender issues and prioritize into the overall endeavors of the agricultural sector, which ultimately contribute to the sustainable agricultural development of the country. (Ministry of Agriculture, 2011)

Charles worth (2005) in a research study utilized the findings of a recently completed, eight-country research project to visit some key issues in the theory and practice of gender mainstreaming. The research results indicated that GM is a diverse entity when looked at from a cross-national perspective but rather hollow when considered within the national setting. To the extent that there is a "common core" to GM in action across countries, it lies in the tendency to apply the approach in a technocratic way and to be no systemic in compass. Kelly (2005) specified that GM required a radical redefinition of policy values and practices.

Reviews of National Perspective

A UNIFEM project entitled "Women in Fisheries in Orissa" launched by CIFA during 1992-1996 took care of 330 tribal women from 4 districts were given training on carp culture techniques. Besides, CIFA conducted training programme on "women in aquaculture" every year. A few cases where

women group are successful in aquaculture developments are –All women cooperative, Manipur; Chellanam experiment, Kerala; *Adivasi Mahila Machhuasamiti*, Bastar, Chhattisgarh and carp seed rearing by tribal women Orissa. Many researchers, social scientists, extension workers from varied field of expertise contributed their findings in Fisheries for gender mainstreaming.

According to Parikh and Acharya (2001) Agriculture and allied sectors contribute 16.03 per cent to the state domestic product, though it employed more than 60 per cent of the work force and the lack of irrigation facility was a serious limitation the overall macro performance of agriculture seems to be improving in Maharashtra over time, which has also benefited the poor. Demand for laborers, including women laborers, has been rising. The proportion of female workers in agriculture to total female main workers in Maharashtra was 76.72% in 2001. Thus women seem to be more confined to agriculture compared to men. More than half of the women farmers were engaged in the capacity of labors in agriculture. According to DARE/ICAR annual report 2003-2004, The National Research Centre for Women in Agriculture (NRCWA) has been functioning at Bhubaneswar, Orissa, for developing methodologies, for identification of gender implications in farming systems approach and to develop women specific technologies under different production systems. Under the project Involving rural women in aquaculture – A step towards ensuring economic and nutritional security 56 backyard ponds of Puri and Khurda district were selected for fish culture and nursery raising through the active involvement of rural women. Baseline information of the participating women, water analysis of the ponds and trainings on pond preparation, nursery rearing of rohu and catla, cleaning of weeds, removal of weed fishes, manuring and lime application were undertaken.

According to Srinivasan and Sriram (2003), the SHG-bank linkage programme in micro finance was identified to work better where the credit culture was not severely damaged, particularly in Southern parts of India and the study examined microfinance and women empowerment in the rural areas of Cuddalore district. As much as 100 samples were drawn randomly and the factors which influence women empowerment were identified and examined social and economic impacts of microfinance.

In the year 2005 in 7th Indian Fisheries Forum special discussions were held to assess the women participation in fishery sector. So the women role is slowly taking the attention of scientists, extension functionaries and policy makers. Some of the notable works are gender needs in fisheries by Sadangi, et.al., (2007), gender main streaming by Srinath, et.al., (2007), Ashaletha and Balasubramaniam, 2007; gender equity by Deboral and Ramachandran (2007), women empowerment by Nandeesha and Debashish (2001); social impact and women empowerment by Kripa and Surendranathan (2007), gender status in Indian Fisheries by Nandeesha (2001) and Empowering women by promoting aquaculture by Sahoo et. al.,(2007) and Dynamics of Women's Self Help Groups in Malabar fisheries sector by Vipinkumar (2007).

Somasekhar and Bapuji (2005) in the study on "Empowerment of Women Through Self-help Groups: The Case of DWCRA in Andhra Pradesh", addressed the dynamics of empowerment of women in Andhra Pradesh by means of SHG strategy launched in early 1980s for improving the socio-economic status of these women. The SHG strategy based on the concept of micro-finance involving lakhs of poor rural women has legitimized their demand for equitable space in every sphere of life.

Siwal (2007) reported the age-specific work participation rates which revealed that women tended to enter the labour market later than men. In the age group 15-29, participation of male is considerably higher than females, both in rural and urban India. Female participation improved with age until 60 years, but the gender gap continued to be very pronounced. According to Planning Commission (2007), an important gap in gender statistics at present is invisibility of women's work in the database. Giving visibility to women's work includes not only improved data on women workers, but also the data on constraints and problems of women workers. It also includes creation of comprehensive profile of women workers as well as dimensions of women's unpaid non-economic work carried out at home.

Reddy (2008) reported that Andhra Pradesh is India's fifth largest State with a population of 76 million of which 3/4th live in 26500 rural villages. Today there are more than 25 lakh SHGs in the country, 90 per cent of them are

women Self-Help Groups. There are about 4.65 lakhs women SHGs in Andhra Pradesh covering nearly 61.70 lakhs poor women. Andhra Pradesh alone has about half of SHGs organized in the country. Since inception, an amount of Rs.1556.90 crore is mobilized as corpus by these groups. Impressed by the remarkable success of women Self-Help Groups in Andhra Pradesh, the World Bank said that the model could be replicated in other States in India and in other countries.

Saravanan (2008), in "Micro Finance and Rural Development in Tamil Nadu," made an attempt to analyses the microfinance activities in Tamil Nadu as it is one of the fast growing states of the country with a vast area and sharp interregional variations in socio-economic achievements. According to Meenu *et al* (2008), in male dominated society, women have always been underestimated and discriminated in all spheres of life be it their family and social life or their economic and political life. Over the years various efforts have been made by many Government and NGOs to promote women empowerment especially in rural areas.

Microfinance can contribute to solving the problem of inadequate housing and urban services as an integral part of poverty alleviation programmes and challenge lies in finding the level of flexibility in the credit instrument that could make it match the multiple credit requirements of the low income borrowers without imposing unbearably high cost of monitoring its end-use upon the lenders. It was estimated that 26.1 per cent of total population lives below poverty line in India and since independence; government has taken several initiatives to tackle the scarce of poverty through area development approach, sectoral approach. But all the initiatives failed to achieve the target due to faulty planning and improper implementation and lack of will. Formal banking sector also ignored the poor due to risk involved in lending to poor as they do not have collaterals and apprehension of non-bankability. (Mansuri, 2010)

Amutha (2011) analyzed the economic empowerment of women through SHGs in three villages of Tuticorin District of Tamil Nadu with 238 respondents selected from 18 SHG s of three villages by using simple random sampling method. Empowerment signifies increased participation in

decision making and it is this process through which people feel they are capable of making decision and right to do so.

Kirankere and Subrahmanya (2013) found that Micro-finance has become one of the most effective interventions for economic empowerment of the poor. Empowerment of rural women is nothing but development of self-esteem, confidence, realization of their potential and enhancement of their collective bargaining power.

Microfinance to Self Help Groups (SHGs) may be considered a vital tool for meeting the financial requirement of those poorer sections of the society living in the rural areas and the study analyzed the role of Micro-Finance and Self-Help-Groups (SHGs) for the socio-economic development of the poor people in Lakhimpur district of Assam. The primary aim of the SHG - Bank linkage programme was to integrate informal savings and credit groups with mainstream banking system by providing credit facility to groups to enhance their fund base and the expectation was that SHG members will be enabled to access frequent and comparatively small loans from savings and revolving fund from the Government. Vipinkumar (2013) studied the coastal indebtedness and impact of microfinance/ SHGs in marine fisheries sector in 8 maritime states of the country.

Micro-finance interventions were well-recognized world over as an effective tool for poverty alleviation and improving socio-economic status of rural poor and in India too, micro-finance was making headway in its effort for reducing poverty and empowering rural women. Micro-finance through the network of cooperatives, commercial banks, regional rural banks, NABARD and NGO's has been largely a supply driven recent approach. There are three types of lending technologies: (i) the document based and asset based conventional technology, which is followed by almost all existing banks. (ii) The group lending technology, which comes in various shapes and forms having its own advantages as well as drawbacks. (iii) Individual based lending technology is one where the Micro-finance institutions have to be very careful in assessing the repayments capacity of the borrowers.

Objectives of the study

1. To study the impact of selected 'Self Help Groups' in Gender mainstreaming in marine fisheries sector.

2. To study the extent of empowerment of selected Self Help Groups in terms of gender mainstreaming through appropriate indices of measurement.

3. To identify the relevant fishery based and allied sector micro enterprises catering to the location specific needs of women stakeholders and imparting the Entrepreneurial Capacity Building Training on the identified micro enterprises in fisheries sector by appropriate HRD intervention programs to the weak and vulnerable SHGs and document the success cases of entrepreneurial capacity building of Self Help Groups.

Practical Utility

- The impact assessment of Self Help Groups in Gender mainstreaming in marine fisheries sector gives a clear cut introspection of the extent of equity and equality of men and women is being perpetuated through the micro finance enterprises in marine fisheries sector of the country. Because Gender dimensions and subsequent relevant interventions in microfinance are crucial for improving livelihoods in a sustainable manner. As it is being assessed in terms of participation profile, access and control over the resources, decision making aspects and identification of gender roles and gender needs whether practical or strategic gender need, it will give rise to an exhaustive coverage of gender perspective in all micro enterprises in marine fisheries sector of the country.

- The study on the extent of empowerment of selected Self Help Groups/MFIs in terms of gender mainstreaming through appropriate indices of measurement is the first of its kind which can be applied in similar future research on gender empowerment in allied sectors also which in turn can be used as a practical manual for social mobilization of micro enterprises with prime consideration on gender analysis and incorporating gender perspective. This gives an imperative view that SHGs should not see the gender discussion as that of merely promoting women's issues, but that which provides a holistic approach to differentiating product composition and delivery to meet identified needs of both women and men.

- The generation of the ICT based cyber extension packages through documenting the success cases of entrepreneurial capacity building of Self Help Groups with special reference to gender perspective with ICT hub focuses attention on interactive multimedia cyber extension packages such as audio records, video clippings, still picture clippings, 2 D and 3 D animation movies, ICT based presentations and web portal designs with appropriate web 2 version designing tools such as those in joomla, drupel, wiki, agropedia, agmarknet, agrisnet, hortnet, RSS feed etc which in turn can link to the institute website as a gender portal. As an additional facility is being generated for the website of CMFRI, with consideration on the extension and social research paradigm of gender mainstreaming in marine fisheries sector, it can contribute to the broad spectrum mission envisaged in the project as the sidelined objective for developing interactive multimedia-cyber extension modules on gender empowerment which will highlight the fishery based technologies for economic empowerment with special emphasis on gender mainstreaming with priority on ICT interventions and web based tools appropriately modified for men as well as women fabric in the marine fisheries sector.

Table 1.1 Activities and output details

Objective wise	Activity	Month & Year		Output monitorable Target(s)
		Start	Complet-ion	
1.	Studying the impact of 'Self Help Groups' in Gender mainstreaming in marine fisheries sector	July 2014	March 2016	Data on impact assessment of selected SHGs in gender mainstreaming
2.	Studying the extent of empowerment of selected Self Help Groups in terms of gender mainstreaming through appropriate indices of measurement.	July 2014	March 2016	Empowerment Index developed and assessment of extent of empowerment of selected SHGs.
3.	Identifying the relevant fishery based and allied sector micro enterprises catering to the location specific needs of women stakeholders and imparting ECB Training on the identified micro enterprises by appropriate HRD intervention programmes to the weak and vulnerable SHGs.	October 2014	March 2017	Practical ECB training & demonstrations on appropriate fishery based and allied sector micro enterprises for women stakeholders of the weak and vulnerable SHGs
4.	Documenting the success cases of ECB of SHGs with special reference to gender perspective and	October 2014	March 2017	Developing ICT modules and cyber extension packages for entrepreneurial technical training and extension in marine fisheries sector

Methodology

The study was undertaken in the coastal belts of South India and Odisha state. The six maritime states of South India such as Karnataka, Kerala, Tamil Nadu, Andhra Pradesh and Odisha state were covered with the following activities undertaken step by step.

Impact of 'SHGs' in Gender mainstreaming

For studying the impact of SHGs, situational analysis was undertaken through PLA in the selected potential maritime locations in the above mentioned states and identification of SHGs with fishery based micro enterprises was made on the following areas.

Marine Fisheries & Mariculture sectors:

- Bivalve farming: Mussel Culture, Oyster Farming, Pearl culture
- Ornamental Fish culture
- Mud crab culture
- Integrated finfish culture
- Shrimp culture
- Seaweed based enterprises
- Fish feed production
- Cage culture
- Clam Collection

Processing & allied sector micro enterprises

- Value Added Fish Producing Units
- Dry Fish Units
- Fish Processing Units
- Ready to Eat Fish Products
- Ready to Cook Fish Products

The impact of these SHGs on gender mainstreaming was studied in terms of equity and equality of both men and women in each household in terms of

participation profile, access and control over the resources and decision making aspects and identification of gender roles and gender needs. For this, the male and female counterparts of each household are to be separately interviewed with a pre-tested well-structured interview schedule on the extent of gender mainstreaming in terms of the following parameters.

(1) Participation profile
(2) Access and control over the resources
(3) Decision making
(4) Identification of gender role and gender need

(Gender division of labour is based on the work and responsibilities assigned to men and women on the basis of their gender identity. In most societies, men's work is more highly valued and that women's work and much of women's work is unpaid and unrecognized. Moser's classification of women's work emphasizes on 3 categories such as reproductive (care and maintenance of household and all its members) productive (production of goods and services or consumption and trade) and community roles (organization and management of collective events, services and politics)

Similarly the gender needs are classified as practical and strategic gender needs. The Practical gender needs arise from the different material conditions of women and men: they reflected on women's subordinate position in society but do not include changing it. The strategic gender needs of women and men arise from their position, status and power. Women's strategic gender needs may include ownership rights to land and challenging the gender balance of power and control to achieve gender equality.

Methodology for quantifying the participation profile, access and control over the resources, decision making aspects and gender role and gender need identification for Bivalve farming technology practiced by the SHGs is described below. Each activity of the selected microenterprise of the concerned SHG will be listed out the participation profile of the response of man and woman counterpart will be separately assessed to find if there is any significant difference between men and women in the participation in

the activities. From each state, 12 SHGs (approximately based on the availability of micro-enterprises) were covered and form each SHG, 15 each of male and female respondents were covered comprising approximately a total of 2,500 respondents.

The similar methodology was followed for the quantification of access and control over the resources, decision making aspects and gender role and gender need analysis for assessing the gender mainstreaming ensuring equity and equality among man and woman counterpart of each household of the members of SHG. The same methodology will be followed for other micro enterprises of SHGs in the marine fisheries sector by developing a pre-tested well-structured and standardized data collection protocol. The typology participation profile, access to resources in bivalve farming in gender response such as female alone, male**<**female, male **=** female**,** male **>**female and male alone indicated separately for male and female respondents. The same pattern will be used for decision making also. The gender needs (practical/strategic) in fishery based enterprises will be identified separately for men and women counterparts separately for the family in the order of importance they assign to each need.

Level of performance and extent of empowerment of selected SHGs in terms of gender mainstreaming through appropriate indices of measurement.

The situational analysis was undertaken for identification of appropriate Self Help Groups mobilized in marine fisheries sector with fishery based micro enterprises or allied sector micro enterprises through PLA and systematic data collection processes. From each of the four districts, as much as 12 Self Help Groups from maritime states and 15 members from each SHG were personally interviewed with the structured interview schedule to assess the level of performance and extent of empowerment by developing the Empowerment Index. Assessment of Level of performance of SHGs was done based on the checklist of NABARD consisting of 16 dimensions as follows:

Table 1.2 Indicators for Assessment of Level of Performance of SHGs

Sl No	Factors to be checked	Very Good (3)	Good (2)	Unsatisfactory (1)
1	Group size	15 to 20	15 to 10	Less than 10
2	Type of members	Only very poor members	2 or 3 not very poor members	many not poor members
3	Number of meetings	Four meetings in a month	Two meetings in a month	Less than two meetings in a month
4	Timings of meetings	Night or after 6 p.m.	Morning between 7 and 9 am	Other timings
5	Attendance of members	More than 90%	70 to 90%	Less than 70%
6	Participation of members	Very high level of participation	Medium level of participation	Low level of participation
7	Savings collection within the group	Four times a month	Three times a month	Less than three times a month
8	Amount to be saved	Fixed amounts	Varying amounts	-
9	Interest on internal loan	Depending upon the purpose	24 to 36%	More than 36%
10	Utilization of savings amount by SHG	Fully used for loaning to members	Partly used for loaning	Poor utilization
11	Loan recoveries	More than 90%	70 to 90%	Less than 70%

12	Maintenance of books	All books are regularly maintained	Most important registers (minutes, maintaining and Updated savings, loans, etc.) updating books	Irregular in maintaining and updating
13	Accumulated savings	More than Rs. 5000/-	Rs. 3000-5000/-	Less than Rs.3000/-
14	Knowledge of the rules of SHG	Known to all	-	Not known to all
15	Education level	More than 20 percent of members can read and and write		Less than 20 per cent know to read and write
16	Knowledge of Govt. programs	All are aware of Govt. program	Most of the members know about Govt. program	No one knows
17.	Any other relevant dimension based on the specification of site and SHG			

The quantification of Empowerment Index was based on the identification of sub-dimensions form the available indices of previous social research outputs appropriately modified for the present study from experiences and observations and the following are the parameters of measurement of Empowerment Index.

Gender Empowerment Index paradigm indicators

The empowerment can be operationally defined as the difference in the extent of empowerment level of women in the present context between the empowerment level prior to the formation of SHG, based on the sub-dimensions, such as confidence building, self-esteem, decision making pattern, capacity building, psychological empowerment, social empowerment, economic empowerment and political empowerment. Now let's see the sub-dimensions of empowerment.

1. Confidence building: It depicted the extent to which a SHG member was confident to participate in various discussions within and outside the SHG and also to use the skills acquired through SHG. The different categories included were confidence built within family, confidence built within SHG, confidence built within public meetings, improvement in technical and practical skills through training, acquisition of skills for income generation, use of skills for income generation, development of managerial skills, ability to facilitate a group meeting and addition to literacy/education.

2. Self-esteem: Self-esteem of group members was measured to assess how they perceived their own image in different areas. It was worked out by keeping four major variables viz; self-image in the family, self-image in the community, self-reliance/Independence and feeling of security.

3. Decision making pattern: It is the degree to which the respondent makes a decision regarding children's education, family planning, buying and selling land, property and households, family and social functions and finally in Group meeting/Public gatherings.

4. Capacity building: It was determined on the basis of the ability of members to take risk, understand and solve problems, try new ventures and ability to take criticism.

5. Psychological empowerment: The level of psychological empowerment was measured by the SHG members' perception about future and satisfaction. The two major components used for measuring psychological empowerment were hope and overall satisfaction.

6. Social empowerment: Social empowerment was measured, covering the aspects such as team spirit, communication skill, and participation in group activity, leadership, and reduction in domestic violence, attitudes towards dowry, superstition, freedom and empowerment of women.

7. Economic empowerment: It refers to the economic background of SHG members. For measuring the level of economic empowerment, four major variables were selected. The variables included were making household purchase, income, indebtedness and repayment, access to loan and control of use of credit.

8. Political empowerment: It was the degree of perception of SHG members towards political aspects. The variables included for measuring the level of political empowerment were participation in Panchayath Raj elections and changes in political views.

For the computation of Empowerment Index (EI), the scores obtained for each of the above mentioned sub dimensions were made uniform. These scores were added to get the EI score of each respondent.

Utility of Empowerment Index

Empowerment Index is used to assign an order of priority to the measured empowerments, by comparing them among themselves. An empowerment index was employed to rank the identified sub dimensions of empowerment like confidence building, self-esteem, decision making pattern, capacity building, psychological empowerment, Social empowerment, economic

empowerment and political empowerment. The responses from the SHG members were collected under two conditions that is before joining in the SHG and after joining the SHG and is measured on a three-point scale namely 'always', 'sometimes' and 'never' which were assigned scores of 3, 2, 1 respectively. There is immense practical utility of this Index as it is often inevitable in social sciences, to assess the extent of empowerment and capacity building initiatives of group enterprises and independent ventures. The scale can be used in similar future research aspects for measuring the effectiveness of the group for larger applications ensuring sustainability.

Computation Technique of Empowerment Index

All these sub-dimensions were measured by a set of inventories containing appropriate questions arranged in a three-point continuum of always, sometimes and never with scoring pattern 3, 2 and 1 for positive and vice versa for negative questions. An empowerment index was employed to rank the identified sub dimensions of empowerment. The responses from the SHG members were collected under two conditions, i.e. before joining the SHG and after joining the SHG. By totaling the value assigned to each dimension of an empowerment component, an actual score was obtained for each empowerment component. Minimum and maximum values are set in order to transform the actual scores into indices between 0 to 1. Standardization was done to make it unit free using below given formula.

$$\text{Empowerment index} = \frac{\text{Actual score- Minimum score}}{\text{Maximum score- Minimum score}}$$

Based on the score obtained on the empowerment index, empowerments were classified into low (Up to 0.33), medium (0.33-0.66) and high (above 0.66). By totaling the value assigned to each dimension of an empowerment, an actual score is obtained for each empowerment. Minimum and maximum values are set in order to transform the actual scores into indices between 0 to 1. Standardization was done to make it unit free using below given formula. Based on the score obtained on the empowerment index, empowerments were classified into low, medium and high.

In the standardization of the Empowerment Index scale, each dimension was assigned weightage by expert judges and the actual score obtained for each dimension by totaling the sub-dimensions, will be multiplied with the corresponding weightages by scale product method and then compute the empowerment index score. The dimensions with weightages and sub-dimensions of Empowerment Index are as follows:

Table 1.3 weightages and sub-dimensions of Empowerment Index

No	Dimensions	Weightage
1 1	Confidence building	1
2 2	Self-esteem	1
3 3	Decision making pattern	1.1
4 4	Capacity building	1.4
5 5	Psychological Empowerment	1.1
6 6	Social Empowerment	1.6
7 7	Economic Empowerment	1.8
8 8	Political Empowerment	1

The total score of GEI for an individual will be obtained by adding the individual scores of each component together. For the measurement of the sub-dimensions, the procedure followed by Pfeiffer and Jones (1972) with modifications and Krishna (1999) with appropriate changes suitable for the present study will be used and for the protocol development. For the computation of the SHG Empowerment Index (SHGEI) the scores obtained for each of the above mentioned sub-dimensions will be first made uniform and then multiplied by the corresponding weightage assigned to each and these scores will be then added up to get the Empowerment Index score of each SHG.

The Empowerment paradigm indicators/ deliverables in general will be the increased acceptance by women & men, Women as community decision makers, Greater personal & economic independence and self-confidence, Increased women's involvement in personal, family and community development, More visible & effective women's organizations, More women in education & training programs, Improved health of women and children,

Improvements in women's legal status, Decline of violence against women, Increased women's control over their own fertility, Reduced institutional discrimination & bias against women, Increased public awareness of women issues, Improved food security, Reduced vulnerability, Improved sense of wellbeing, Secure home and roof over head, Stable income, Sustainable use of natural resources, Future for children, Spiritual fulfillment, Voice to decide on own future, Education for children, Emotional well-being, Freedom from harassment etc.

To identify the relevant fishery based and allied sector micro enterprises catering to the location specific needs of women stakeholders and imparting the Entrepreneurial Capacity Building Training on the identified micro enterprises in fisheries sector by appropriate HRD intervention programs to the weak and vulnerable SHGs and document the success cases of entrepreneurial capacity building of Self Help Groups.

This was feasible by appropriate HRD interventions on motivational training on strengthening the SHGs and imparting the Entrepreneurial Capacity Building Training on identified location specific selected technologies of appropriate microenterprise in fisheries and allied sectors which will be undertaken by CMFRI project staff, concerned subject experts from Central & State Govt. organizations of Fisheries, Fisheries Colleges and Non-Government Organizations**.** Similarly, the success cases of those Microfinance Institutions/Self Help Groups of fisher folk on Entrepreneurial Capacity Building which significantly played the role in the poverty alleviation with improved empowerment status will be documented through ICT based interactive multimedia cyber extension packages such as audio records, video clippings, still picture clippings, 2 D and 3 D animation movies, ICT based presentations and web portal designs which can ultimately contribute for the development of an ICT hub with appropriate web 2 version designing tools such as those in joomla, drupel, wiki, agropedia, agmarknet, agrisnet, hortnet, RSS feed (Resource Site Syndication Feed) etc which in turn can link to the institute website and this facility is being generated for the first of its kind in CMFRI, in social research paradigm of gender mainstreaming in marine fisheries sector.

The documentation of success cases of SHG mobilization will be done throughout the project phase by conducting participatory evaluation and stage by stage video documentation of the project activities of intervention points, stage by stage improvements in implementing the micro entrepreneurial capacity building on a sustainable basis. Success cases of Self Help Groups of Women fisher folk on Entrepreneurial Capacity Building were elucidated which in turn can be used as a case model for the development of a sustainable strategy in the paradigm of entrepreneurial capacity building of women fisher folk which can wholeheartedly contribute to the development of interactive multimedia cyber extension modules on a sustainable basis for imparting entrepreneurial technical training for women in marine fisheries sector.

Expected output

The expected outputs of the study are listed below:

- Effective Self Help Group unit established & efficient women who underwent Entrepreneurial Capacity Building Training.
- Economically viable micro enterprises disseminated for practical utility.
- Desirable change in income/ earnings of beneficiaries of SHG.
- No. of products developed as CDs, visual aids, pamphlets and publications produced and documented on gender mainstreaming.
- More effective and micro enterprises which became sustainable.
- Significant changes in educational status, nutritional improvements, household consumption, recreational activities and employment generation of beneficiaries of SHG and their family members.
- The documented success stories of SHG mobilization in the form of interactive multi-media cyber extension modules.

Expected benefits and economic Impact

- ICT based multimedia cyber extension modules as case models for SHG mobilsation.
- The present status and the constraints faced by SHGs in marine fisheries sector documented and the identified important dimensions contributing to the effectiveness of Self Help Groups and Entrepreneurial Capacity Building can be subsequently used for assessing the credit dynamics and

rural indebtedness level in different types of community based groups such as those of farm women, youth, laborers, extension personnel etc. even in allied sectors of fisheries.

- The success cases of Self Help Group mobilization in reducing the vicious circle of rural indebtedness and alleviating poverty and in marine fisheries sector elucidated out of the study may be adopted as case model for further progress in SHGs of marine fisher folk and for mobilizing SHGs in other key areas like Agro based industries, Forestry, Floriculture, Watershed development etc.
- The documented success stories of SHG mobilization with ICT based cyber extension packages and gender mainstreaming will bring about sustainable development of fisher folk in terms of economic empowerment of Self Help groups/micro finance organizations through efficient management of fisheries resources with the stakeholders' increased participation and involvement.

Presentation of the study

The study is presented in thirteen chapters. The first chapter deals with the introductory aspects covering the genesis and beyond the research study on gender mainstreaming and impact of SHGS. It covers origin of the problem, technical details, definition of problem, objectives, review of international and national status of research subject, methodology, steps in the plan of action of the project, time schedule of activities / milestones, annual targets for each activity, importance of the study (gaps in knowledge / products / process technology), questions attempted to be answered though the study, anticipated process/products/technology/knowledge expected to be evolved by pursuing the study, practical utility of anticipated results of the study, short term, medium term and long-term benefits and limitations of the study. The reviews of related literature in the light of objectives and the conceptual framework are also given in the methodology part of the first chapter on genesis and beyond. The second chapter highlights the major highlights of the comprehended results of the study in general covering the coastal belts of Kerala, Karnataka, Tamil Nadu, Andhra Pradesh and Odisha states. The third chapter onwards covered the successful microenterprises and corresponding gender analysis and economic feasibility analysis results and the last chapter focused on synergies and outlines on final conclusions.

CHAPTER 2

A Snapshot on SHG Based fishery Enterprises in Coastal India

A snapshot on SHG based fishery Enterprises in Coastal India

The study on Gender mainstreaming and impact of SHGs emphasized on selected 750 'Self Help Groups' in Gender mainstreaming in marine fisheries sector and assessed the level of performance and extent of empowerment of through appropriate indices of measurement from 25 nos. of fishery based micro enterprises from Kerala, Karnataka, Tamil Nadu, Andhra Pradesh and Odisha. (Table 1) Also identified the relevant fishery based and allied sector micro enterprises catering to the location specific needs of the SHG members and imparted 45 Entrepreneurial Capacity Building (ECB)Training programmes on the identified micro enterprises by appropriate HRD intervention programs and organized 120 fisher folk interaction meets.

Data were gathered with standardized protocols, scales and indices developed in Mararikkulam, Thannermukkam, Kumarakom, Vadakkekkara, Vallikkunnu and Kasaba in Kerala,Bengare, Surathkal and Ullala villages of Dakshina Kannada district in Karnataka and Pampan, Rameswaram, Thankachimadam and Mandapam locations in Tamil Nadu and Arakuda and Astaranga villages in Puri district of Odisha for standardization. In Andhra Pradesh, farmer interaction meets and video documentation were conducted for women SHGs of Bandarvanipetta of Sreekakulam district, Chinthappaly of Vijayanagaram district and Pudimadakka, Lawson's bay and Jalaripetta of Visakhapatnam district assessed the impact of SHGs.

Documented 200 success cases on ECB of SHGs with special reference to gender perspective. Brought out 20 movies as Gender Mainstreaming series on Impact of SHGs, (Table 2.2) one book on, Gender Mainstreaming and Impact of SHGs in Marine Fisheries Sector and one Interactive Multimedia on Gender Mainstreaming and SHGs: A cyber extension package.

Plate 2.1 Thathwamasi SHG of Cage farming in Anapuzha

Table 2.1: Enterprises and details of SHGs covered

Sl. No	Entrepreneurial Activity	Number of SHGs	Avg. Level of Performance	Avg. Empowerment Index
1	Fertifish unit	15	72.75	0.82
2	Chinese dip net	10	79.16	0.89
3	Aqua-tourism	8	78.92	0.88
4	Fish Aggregating Devices	10	79.95	0.89
5	Hand picking fishing unit	15	50.11	0.65
6	Clam processing	75	56.33	0.67
7	Pickling unit	75	72.26	0.83
8	Fish drying	60	69.95	0.78
9	Dry fish & fresh fish procuring	45	79.53	0.87
10	Fish vending /selling	70	69.16	0.78

11	Mussel culture	50	75.95	0.84
12	Prawn culture	30	59.61	0.69
13	Quarry fish culture	16	78.75	0.89
14	Cage farming	27	72.23	0.82
15	Ornamental fish culture	49	63.5	0.74
16	Fish culture	30	65.5	0.76
17	Paddy cum fish culture	30	74.91	0.83
18	Seaweed farming	30	77.63	0.86
19	Fish Amino units	10	75.35	0.84
20	Ready to Eat Fish Products	15	74.36	0.83
21	Ready to Cook Fish Products	20	71.35	0.81
22	Crab Processing	15	68.34	0.77
23	Aquaponics	5	70.21	0.61
24	Bivalve collection	30	69.16	0.77
25	Fish feed production	10	59.25	0.61

A Glimpse of gender mainstreaming impact assessment of SHGs in Kerala

In Kerala context, SHG refers to self-governed peer controlled group of people with same socio economic background and having a desire to collectively perform common purpose. Here poor people voluntarily together to save whatever amount they can save conveniently out of their earnings, to mutually agree to contribute to a common fund and to lend to the members for meeting their productive and emergent needs. SHG usually composed 4-20 members. The major aims of formation are poverty eradication, empowering women, developing leadership abilities among poor people, increasing school enrollment and increasing the physical social and economic health at the community.

The fisherfolk community is amongst the weakest and most marginalized one of Kerala. The women of this community are therefore among the most marginalized in society. An intensive study about the SHGs of fisher folk focusing on gender analysis and assessment of abilities, strength and weakness of each SHG was conducted and organized farmer interactions for awareness creation with practical training programs on Entrepreneurial Capacity Building.

Kudumbasree of Kerala State Poverty Eradication Mission, and Society for Assistance to Fisherwomen (SAF) and Matsyafed of Kerala State Department of Fisheries, etc. are a couple of programs with major role in the formation of SHGs in Kerala. *Kudumbasreee* is an offshoot of Swarna Jayanthi Shahari Rozgar Yojana. This mission aims at the empowerment of women, through forming SHGs and encouraging their entrepreneurial or other wide range of activities. Through empowering the women, *Kudumbasree* facilitated the economic development of women and helped the team to generate small savings for their families. Society for assistance to fisherwomen is an institution registered under Travancore, Kochi to encourage and strengthen the fisher women in Kerala. SAF helped the women fisher folk to find new livelihood avenues and strengthened economic efficiency. The '*Theeramaithry*' programme of SAF helped the economic and gender empowerment of women fisher folk.

Plate 2.2 Women SHG engaged in shrimp cleaning

Plate 2.3 SHG members cleaning shrimps

The CMFRI team had visited the important and successful SHGs frequently and stage by stage video documentation in the various phases of activities of these SHGs was undertaken. CMFRI organized farmer interactions training programs followed by research focusing on gender analysis, computation of performance level and empowerment index of SHGs, economic feasibility and the success case study elucidation. The socio economic surveys with a pre tested and structured data gathering protocol with standardized scales and indices were done. Extent of involvement in entrepreneurial activity by the SHG members was quantified with structured interview schedule.

Plate 2.4 SHG members engaged in clam processing

The various micro enterprises and details of SHGs covered, the average level of performance, average empowerment index etc. are given in Table. Practical training programs for brackish water cage farming in SHGs of men of Srayithodu in Vembanadu lake in Muhamma, Thathwamasi SHG of Alappuzha, Swaruma Fish pickling SHG in Narakkal, Aiswarya, the women exclusive SHG operating Chinese dip net in Kumabalangi, Surya and Aparna SHGs in Clam Processing in Cheriyakadavu, Jaivasree and Prakrithisree SHGs of Fertifish units in Munambam and Engandiyoor, Ornamental fish SHGs in TV Puram, Samanwaya SHG engaged in Quarry fish culture in Perumbavoor and Matsyagandhi SHG on social entrepreneurship in Mannanchery engaged in Fish Aggregating Devices (FADs) were undertaken under the project. Imparted training and captured video on Clam Processing SHGs in Pookaitha of Alappuzha, Dry fish SHG units in Sakthikulangara of Kollam, Sauparnika and Vandanam SHGs of Narakkal and Malippuram engaged in Aqua tourism, Nithyaharitha Karshakasangham, Karshakasree Vanitha Karshaka Sangham SHG units on Fish Amino Acid production in Elamkunnappuzha, Theeramythri sea food kitchen SHGs in Vayanadu under SAF etc. The success case studies elucidated can act as a case model or practical manual for mobilizing SHGs in other allied sectors on a sustainable basis and also produced about 20 short documentaries about the success stories of SHGs brought out as Gender mainstreaming series.

Plate 2.5 SHG engaged in handpicking of fish

Plate 2.6 Handpicking SHG members with catch

A Glimpse of the Women SHGs in Fish Marketing in Andhra Pradesh

Andhra Pradesh coastal belts are quite noticeable for the amble number of women fisher folk mobilized as Self Help Groups. Highest no. of SHGs in the country is in Andhra Pradesh. A small purview of the cross section of 3 conspicuous districts such as Sreekakulam, Vijayanaragram and Visakhapatnam were taken in to consideration for the assessment of gender mainstreaming and impact of these SHGs. The villages in Sreekakulam district was Bandarvanipetta, a prominent fishing village and massive awareness programme for 6 SHGs of women fisher folk engaged in marketing such as Lakshmi Devi, Anjaneya, Manikandha and Sampathi Vinayaka.

Plate 2.7 Women engaged in fish marketing

Plate 2.8 Project staff interacting with women SHG member in market

The women are engaged in fish marketing and it is exclusively undertaken by them to sell the fish. The loan assistance to the tune of 4 lakhs granted by

the State department was fully being utilized for the purpose and the repayment also was significant.

CMFRI also undertook awareness programme and interaction meets in Vijayanaragarm district and the village chosen was Chinthappally. The SHGs were Nookammathali, Asirithalli and Samalammathalli. The location of the village near the seashore was essentially katcha houses necessitating the improvements needed depicting the poor socio economic status. Women are mobilized for fish marketing of SHGs.

Plate 2.9 Meeting of project staff with SHG members

The Visakhapatnam district SHGs were selected at Pudimadakka and the names are Sri Anjaneya, Sri Durgalamma and Sri Sattemmathalli. The interaction meets organized n these SHGs also brought out the eagerness of involvement in solving the problems for improvement of socio economic status of the families in group basis. Men and women counterparts of these SHGs were personally interviewed to assess the impact of gender mainstreaming in terms of equity and equality. Diversified enterprises are to be chosen and implemented by SHGs and CMFRI joins hands to wish these SHGs of Andhra Coastal belts all the success in future.

Plate 2.10 Project staff with men counter part of SHG members

A Glimpse of SHGs and impact on Gender mainstreaming in Tamil Nadu

Tamil Nadu State with the second longest coastline in the country covers an area of 1,076 km comprising 13 coastal Districts. Tamil Nadu one of the leading marine fish producing states of India holding second position with an estimated marine fish production of 0.709 million tonnes (CMFRI, 2016). Ramanathapuram district is an important coastal district contributing 27 % of fish production of Tamil Nadu. There are 178 fishing villages, with nearly two lakhs fisher folk population in the district which comprises 24 per cent to the total fishermen population in Tamil Nadu (CMFRI, 2010). For the present study, Ramanathapuram district was selected, since the coastal length, number of fishing village and SHG based fishing activities is more compared to other coastal districts in Tamil Nadu.

Plate 2.11 Dry fish SHG in Mandapam

Dry fish enterprise, seaweed culture, crab peeling unit and clam collection unit were identified to study the impact of SHGs in Gender mainstreaming. A total of 10 units in each identified enterprise were randomly selected in Ramanathapuram district of Tamil Nadu. In each unit 15 respondents were selected randomly. A total of 150 respondents were selected for each enterprise. Hence the total sample size for all the four enterprises was 600. The data was subjected to suitable analysis and salient findings are mentioned below

Dry Fish Unit

The study found that regarding access to resources and decision making in various phases of Dry Fish Unit the female play an active role in salting and drying activities. Whereas male play an active role in purchase of raw materials, credit arrangement, marketing, account and record keeping activities.

The mean empowerment index was found to be 72.55. Indicator-wise analysis revealed that the culture empowerment index (89.57) and psychological empowerment index (83.46) was very high. The political empowerment index (35.12) was found to be very low. The economic and social empowerment index was 75.88 and 78.74 respectively. Overall assessment of performance of Self Help Groups on various factors was found to be good.

Plate 2.12 SHG members engaged in fish drying

Seaweed culture

The study found that regarding access to resources and decision making in gender perspective in seaweed culture the female play an active role in seeding, maintenance, harvesting, drying and availing institutional credit. Whereas male play an active role in purchase of raw materials, site selection, construction of floating raft, marketing, availing extension services, account and record keeping activities.

Plate 2.13 Seaweed farming SHG in Ramnathapuram

Plate 2.14 Seaweed SHGs in Mandapam

The mean empowerment index was found to be 78.3, which is high in comparison to other enterprises. Indicator-wise analysis revealed that the culture empowerment index (92.5), economic empowerment index (92.2) and social empowerment index (89.5) was very high. The political empowerment index (38.4) was found to be very low. The psychological empowerment index was 78.8. Overall assessment of performance of Self Help Groups on various factors was found to be very good.

Crab Processing Unit

The study found that regarding involvement, access to resources and decision making in crab processing unit the activities like peeling and cleaning of crab female play an active role, whereas in all other activities male play an active role.

The mean empowerment index was found to be 73.5. Indicator-wise analysis revealed that the culture empowerment index (89.5) and economic empowerment index (85.6) was very high. The political empowerment index (30.5) was found to be very low. The psychological and social empowerment index was 82.4 and 79.7 respectively. Overall assessment of performance of Self Help Groups on various factors was found to be very good.

Plate 2.15 Crab storage rack in SHG unit

Plate 2.16 SHG members involved in crab processing

Clam Collection

The study found that regarding involvement, access to resources and decision making in clam collection activities like method of collection, collection of clam from natural habitat, boiling and meat shucking and cleaning female play an active role, whereas in all other activities like marketing, account and record keeping male play an active role.

The mean empowerment index was found to be 68.4. Indicator-wise analysis revealed that the culture empowerment index (84.5) and psychological empowerment index (82.4) was very high. The political empowerment index (30.5) was found to be very low. The economic and social empowerment index was 72.5 and 72.0 respectively. Overall assessment of performance of Self Help Groups on various factors was found to be good.

A glimpse of SHGs and impact on gender mainstreaming in Odisha state

In Odisha, two villages in Puri district namely, Arakuda and Astaranga were taken into consideration and 34 beneficiaries from 16 SHG in Arakuda and 67 beneficiaries from 15 SHG in Astaranga were taken as samples. In Arakuda, SHGs were involved in fishing, head load work, dry fishing, coir business and nursery to plant acacia and mangrove near Chilkalake. Also involved in fish & prawn seed collection and bivalve collection. The Beneficiaries were of Hindu religion belonging to SC, ST and OBC. Houses were Kuccha except few semi pucca. The major fuel was fire wood. There was no toilet facility in the entire village. The average monthly income was Rs. 1500 to 4500. Loan was availed from private firms. Out of 16 beneficiaries, six were trained mostly on coir business, fish drying and nursery. Trained beneficiaries lead better life. Though there was support from ICZM on fish drying by the solar panel, there was no storage facilities which makes the situation difficult in rainy season. The male to female ratio in the village was 4:5. So gender disparity was not conspicuous.

Plate 2.17 Group meeting for mobilized women SHG in Odisha

In Astrang also the beneficiaries belong to Hindu religion with SC, ST and OBC castes. As marine fisheries are a resource for all, this has displaced the coastal fisher folk from their main occupation and they became poorer due to competition with effluent people. The beneficiaries' education level was from illiterate to matriculation. As the Children more educated, children get maximum education up to graduation and many had migrated to other states like Kerala, Tamil Nadu and Gujarat. The houses were of kacha, semi pucca and pucca types and are they were in the ratio 5:3:2. Only pucca houses had toilet. Monthly income ranged from 4000-16500 and most of them are having TV, motor bike, craft and gear. Fishing was the main occupation besides coir business and dry fishing, marketing and post-harvest method like pickle, pappad and others. Activities like fish seed collection, mother monodon brooders were sold clandestinely. Male to female ratio is 1:1.

Plate 2.18 A glimpse of the group meeting of SHG members

As a diversified venture, women participation in organic farming was also attempted which generated lot of interest among the housewives to cultivate vegetables in their backyard by organic farming. Solid seaweed bio

fertilizer was made by dry seaweed composted with cow dung and soil in the cement tanks. The liquid seaweed fertilizer was prepared from the green algae and the red seaweed collected from Chilka Lake. Homemade insecticides also were prepared with neem leaf.

Plate 2.19 Diversified enterprise on organic vegetable farming

A glimpse of SHGs and impact on gender mainstreaming in Karnataka state

Gender mainstreaming was studied with respect to fishermen and fisherwomen groups in two study areas namely Hoige Bazar and Bengre in Karnataka state. SHGs of Sree Kshetra Dharmasthala Rural Development Project (SKDRDP) such as Manjunatha, Navodaya, Amrithavarshini, Bhramabika and Matsya were taken into consideration. At Hoige Bazar, the extent of men and women involvement in dry fish making unit was undertaken. The extent of involvement by men and women in various stages of dry fish making were documented. The activities in which men and women always involved were salting (81.25 per cent) and sun drying (84.37 per cent).

With respect to access to resources for dry fish unit, it could be inferred that, 75 per cent females felt that procurement of raw materials (fresh fish, salt etc.)was a male alone activity. As much as 71.58 per cent of females said that sun drying of fishes were a female alone activity. In activities like packing of the end product i.e, dry fish and account and record keeping the involvement of males were greater than females as said by 59.3 per cent of females and 40.6 per cent of females.

Plate 2.20 Dry fish unit SHG in Mangalore

Plate 2.21 Fish vending SHG in Uppada

Plate 2.22 Data gathering in Karnataka coastal belts

A study on the Participation profile showed that 81.25 per cent of females said that purchase of raw materials was a man independent work. 37.5 per cent of women said that weighing was a male independent work, and 21.87 per cent of women and 15.62 per cent said that institutional credit and account and record keeping were male independent work.

Access to non-institutional credit and availing extension service was perceived as an important Gender need by 46.88 per cent and 40.63 per cent of women respectively. As much as 78.13 per cent of females perceived activities such as marketing of finished products, selection of site/water and sun drying as most important.

Table 2.2: Movies produced under the project

1. Cage SHG in Vembanad English	2. Cage SHG in Vembanad Malayalam
3. Cage SHG in Vembanad Hindi	4. Chinese Dip Net SHG English
5. Chinese Dip Net SHG Malayalam	6. Chinese Dip Net SHG Hindi
7. Social Entrepreneurship SHG English	8. Social Entrepreneurship SHG Malayalam
9. Clam Processing SHG in Pookaitha English	10. Clam Processing SHG in Pookaitha: Malayalam
11. Aqua tourism SHG English	12. Aqua tourism SHG Malayalam
13. Seafood Kitchen SHG English	14. Seafood Kitchen SHG Malayalam
15. Fertifish SHG English	16. Fertifish SHG Malayalam
17. Fish Amino SHG English	18. Fish Amino SHG Malayalam
19. A Glimpse on the Fishery SHGs of Andhra Pradesh : (English)	20. A short glimpse on Gender Mainstreaming and Impact of SHGs (English)

CHAPTER 3

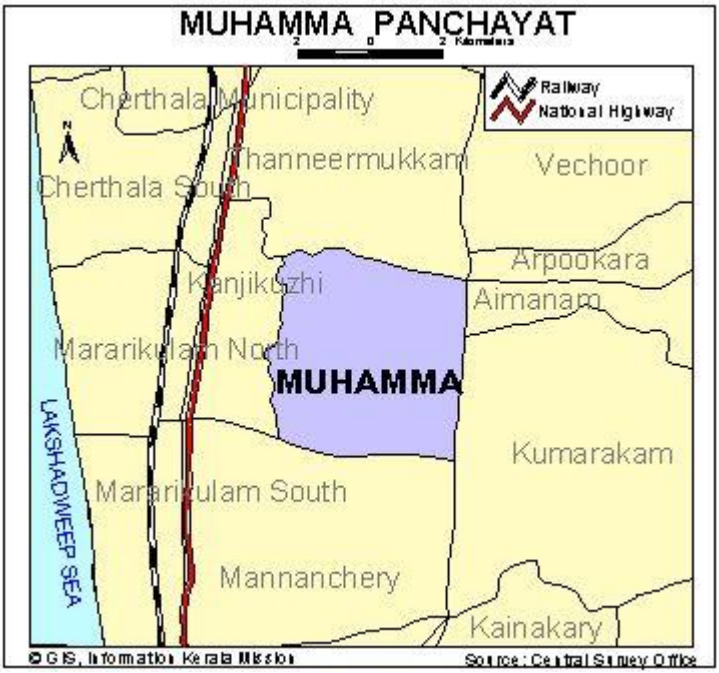
Cage Farming SHGs

Cage culture in Vembanadu

"All humans are born entrepreneurs"-Muhammed Yunus

Vembanad Lake is a scenic beauty for nature lovers which are the longest lake in India, and the largest lake in the state of Kerala with an area of 2,033 km^2 and with a length of 96.5 km. It is a transitional area between sea and land the Alappuzha town is sandwiched between the lake and the Arabian Sea. The Vembanad Wetland system has formed an intricate network of estuaries, lagoons and canals and almost all villages in these areas can be accessed via water transport.

Figure 3.1 Map showing the locale of the study



Vembanadu Lake is also conspicuous with the exquisite brackish water cage culture undertaken by the Self Help Groups of fisherfolk. Fisherfolk mobilized under *Vembanadu Kayal Samraskhana Samithy, Srayithodu in Muhamma*as 6 SHGs undertake Cage farming of commercially important fishes in 20 cages with financial assistance of 'Agency for Development of Aquaculture Kerala (ADAK)' as a part of *Kuttanadu* package. In a venture of assessing the Gender mainstreaming aspect and impact of these Self Help Groups, the central Marine Fisheries Research Institute (CMFRI) offered amble technical assistance to do the cage culture trials.

In this expedition, the major aim and methodology employed from CMFRI essentially consists of a judicious blend of practical extension coupled with extension research. Organizing farmer interactions for Awareness creation and conducting practical training programmes followed by research focusing on Gender analysis, computation of Performance level and Empowerment Index of SHGs, Economic feasibility analysis and the success case study elucidation.

The Practical Extension Part consists of Awareness & ECB Training programmes systematically executed and then extension Research part focusing on Socio economic surveys with a pre-tested and structured data gathering protocol with standardized scales and indices. Massive awareness programmes and farmer interaction meets were organized in Vembanadu site with the involvement of scientists from mariculture division of CMFRI.

Plate 3.1-Imparting ECB training for SHG members by CMFRI team

Plate3.2-Installation of cage in Vembanadu Lake in Muhamma

Practical Training programmes on cage fabrication and cage installation along with seeding and feeding were also undertaken systematically with the involvement of fisherfolk members of SHGs. Stage by stage Video documentation in the various phases of activities of SHGs in cage culture were documented. The major fishes cultured were Pearl spot and Tilapia as they are highly adaptable to salinity fluctuations in monsoon.

Extent of Involvement in Entrepreneurial Activity by the members like Purchase of raw materials, Construction of cage, Seeding, Maintenance, Harvesting, Transportation, Marketing, Account and Record keeping were quantified with structured interview schedule. The gender mainstreaming to assess the equity and equality of men and women counterparts of the family were separately interviewed to assess the access to resources, participation profile, decision making aspect and gender need analysis.

Plate3.3-Practical training on cage fabrication in Srayithodu SHG

In the quantification of personal and socio-psychological characteristics, it could be observed that highest score was obtained for social participation and the least score for socio economic status. The empowerment index and level of performance of 6 SHGs namely Samanwaya, Santhwana, Sneha, Samridhi, Mythri and Prathyasa were quantified with the standardized interview schedules.

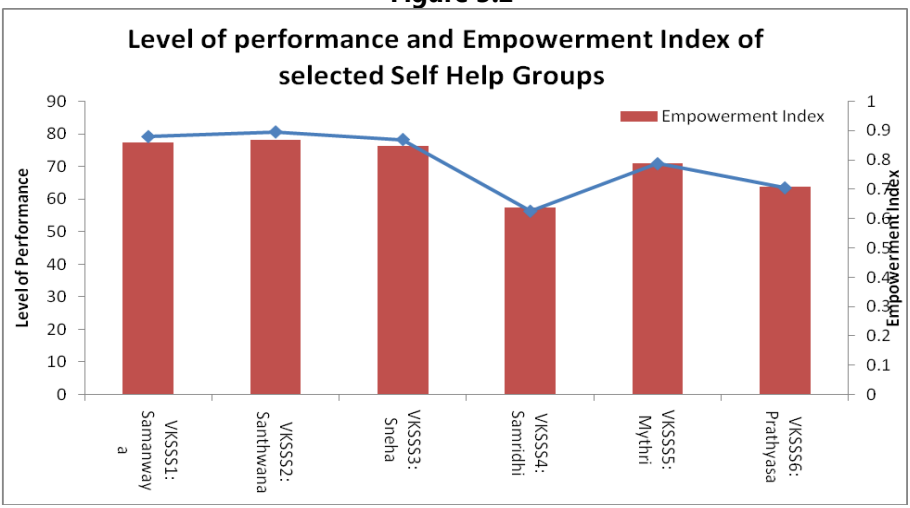
The focus was given on organizing awareness and training programmes of ECB in Cage farming technology, undertaking gender analysis of the members of SHGs, assessing the Performance level of SHGs and Empowerment Index through scales and indices, undertaking the economic feasibility analysis of tilapia and pearl spot and elucidating the success case study of cage farming SHGs in Vembanadu.

The Empowerment Index and Level of Performance of 6 SHGs namely Samanwaya, Santhwana, Sneha, Samridhi, Mythri and Prathyasa were quantified with the standardized interview schedules. (Table3.1). The social and economic empowerment dimensions and capacity building aspects achieved highest score in Empowerment Index in the present study.

Table 3.1: Level of performance and Empowerment Index of selected Self Help Groups

No	SHG Name & Location	Level of Performance	Empowerment Index
1	Vembanadu Kayal Samrakshana Samithy Srayithodu, Unit 1: Samanwaya	79.16	0.86
2	Vembanadu Kayal Samrakshana Samithy Srayithodu, Unit 2: Santhwana	80.58	0.87
3	Vembanadu Kayal Samrakshana Samithy Srayithodu, Unit 3: Sneha	78.26	0.85
4	Vembanadu Kayal Samrakshana Samithy Srayithodu, Unit 4: Samridhi	56.25	0.64
5	Vembanadu Kayal Samrakshana Samithy Srayithodu, Unit 5: Mythri	70.83	0.79
6	Vembanadu Kayal Samrakshana Samithy Srayithodu,, Unit 6: Prathyasa	63.42	0.71

Figure 3.2

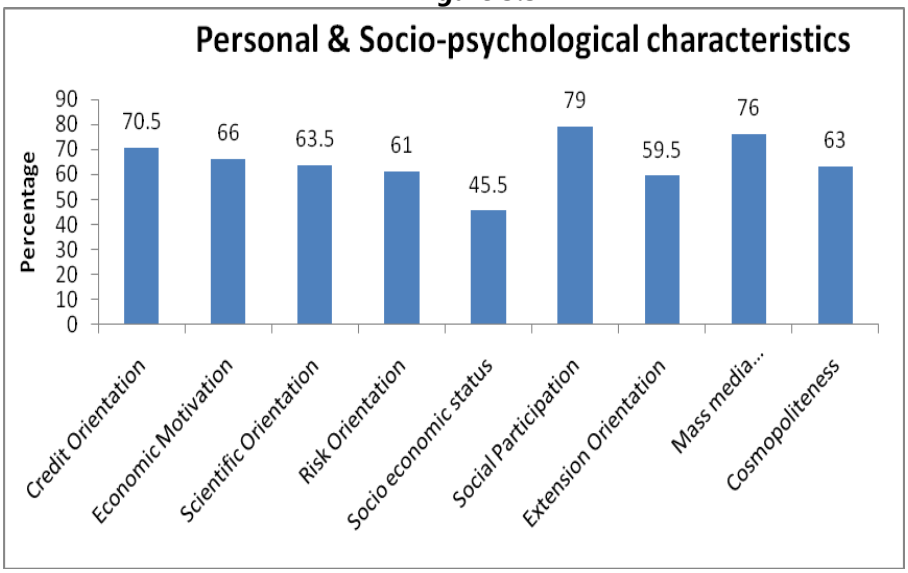


In the quantification of personal and socio-psychological characteristics, it could be observed that highest score was obtained for Social Participation and the least score for Socio Economic Status. (Table 3.2)

Table3.2: Personal & Socio-psychological characteristics

No	Variable	Per cent (Srayithodu SHG members)
1	Credit Orientation	70.5 %
2	Economic Motivation	66.0 %
3	Scientific Orientation	63.5 %
4	Risk Orientation	61.0 %
5	Socio economic status	45.5 %
6	Social Participation	79.0 %
7	Extension Orientation	59.5 %
8	Mass media participation	76.0 %
9	Cosmopolitans	63.0 %

Figure 3.3



The extent of involvement in various phases of the Entrepreneurial Activity was also quantified and expressed in table 3.3. Maximum participation of the members and families was observed during harvesting and cage fabrication stages.

Table 3.3: Extent of Involvement in Entrepreneurial Activity

Activity	Per Cent
Purchase of raw materials	30
Construction of cage	65
Seeding	30
Maintenance	30
Harvesting	80
Transportation	50
Marketing	30
Account and Record keeping	5

Figure 3.4

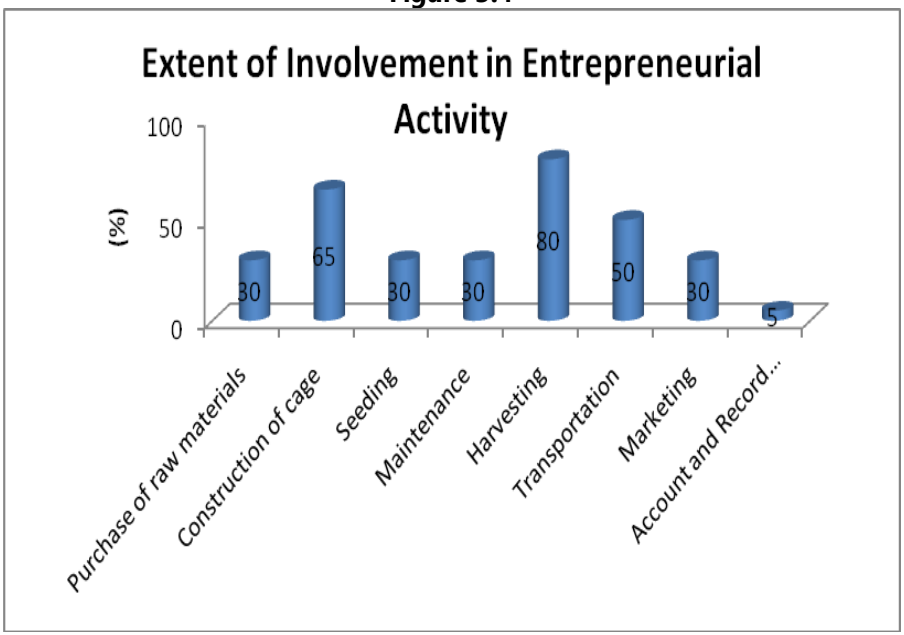


Table 3.4: Access to Resources for Cage culture

Resource Access	Female Alone		M<F		M=F		M>F		Male Alone		No Access	
	F	M	F	M	F	M	F	M	F	M	F	M
Raw materials	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	0.00	0.00
Extension Service	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	0.00	0.00
Site selection	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	0.00	0.00
Construction of cage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	0.00	0.00
Seeding	0.00	0.00	0.00	0.00	12.50	5.00	0.00	0.00	87.50	95.00	0.00	0.00
Feed preparation	0.00	0.00	0.00	0.00	45.00	37.50	0.00	0.00	55.00	62.50	0.00	0.00
Feeding	0.00	0.00	0.00	0.00	50.00	50.00	0.00	0.00	50.00	50.00	0.00	0.00
Maintenance	0.00	0.00	0.00	0.00	65.00	57.50	0.00	0.00	35.00	42.50	0.00	0.00
Harvesting	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	0.00	0.00
Institutional Credit	0.00	0.00	0.00	0.00	62.50	70.00	0.00	0.00	37.50	30.00	0.00	0.00
Non-Institutional Credit	0.00	0.00	0.00	0.00	32.50	25.00	0.00	0.00	67.50	75.00	0.00	0.00
Marketing of harvested fish	0.00	0.00	0.00	0.00	62.50	67.50	0.00	0.00	37.50	32.50	0.00	0.00
Account and Record keeping	0.00	0.00	0.00	0.00	25.00	20.00	0.00	0.00	75.00	80.00	0.00	0.00

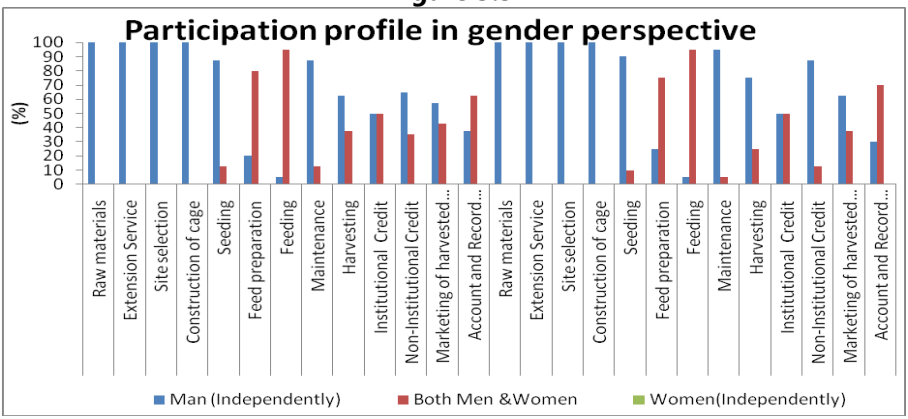
An assessment of gender perspectives in terms of gender need and gender role in cage farming in Muhamma was also done as a part of the study. All households were selected and male and female counterparts in each household were separately interviewed. The gender participation in different activities, gender needs, decision making and access and control over the resources in respect to cage culture were analyzed. Opinion of men and women in above aspect was found to be similar without any significant difference. However, differential gender response was observed among SHGs. Significantly, the accounting/money transaction is under the control of women and the most important requirement perceived by both men and women is the timely availability of seeds. In case of participation and need, both men and women share almost the same opinion. (Sahoo *et al*, 2009, Raghavan, 2009) Socio-economic, technological and export support requirement was analyzed for gender mainstreaming. Male and female respondents in a household were separately interviewed for getting the response of gender needs in terms of access to resources in cage culture, participation in various activities of farming, gender needs and decision making in various stages. The typology access to resources in bivalve farming in gender response such as female alone, male **<**female, male **=** female**,** male **>**female and male is alone indicated separately for male and female respondents (Table 3.4)

A perusal of the table 3.4 clearly shows the response of male and female separately in access to resources concerned with cage farming. Among the responses of female and male for the items of access to resources, most of the items are dominated by 'male alone' except for 'the maintenance role being performed by male and female together. Similarly the participation profile in various activities concerned with cage farming is presented in Table 3.5. The gender response in participation in various activities in mussel farming in such as female alone, male **<**female, male **=** female**,** male **>**female and male alone indicated separately by male and female are presented in Table 3.5.

Table 3.5: Participation profile in gender perspective

Activity	Man (Independently)		Both Men & Women		Women (Independently)	
	Female	Male	Female	Male	Female	Male
Raw materials	100.00	100.00	0.00	0.00	0.00	0.00
Extension Service	100.00	100.00	0.00	0.00	0.00	0.00
Site selection	100.00	100.00	0.00	0.00	0.00	0.00
Construction of cage	100.00	100.00	0.00	0.00	0.00	0.00
Seeding	87.50	90.00	12.50	10.00	0.00	0.00
Feed preparation	20.00	25.00	80.00	75.00	0.00	0.00
Feeding	5.00	5.00	95.00	95.00	0.00	0.00
Maintenance	87.50	95.00	12.50	5.00	0.00	0.00
Harvesting	62.50	75.00	37.50	25.00	0.00	0.00
Institutional Credit	50.00	50.00	50.00	50.00	0.00	0.00
Non-Institutional Credit	65.00	87.50	35.00	12.50	0.00	0.00
Marketing of harvested fish	57.50	62.50	42.50	37.50	0.00	0.00
Account and Record keeping	37.50	30.00	62.50	70.00	0.00	0.00

Figure 3.5



A perusal of the table 3.5 clearly indicates the participation profile in gender perspective in cage farming for male and female separately. It can be glanced clearly from the perusal of the table that, most of the activities are male dominating operations in cage farming, as per the responses of both male and female. But the feed preparation activities are being performed by both men and women.

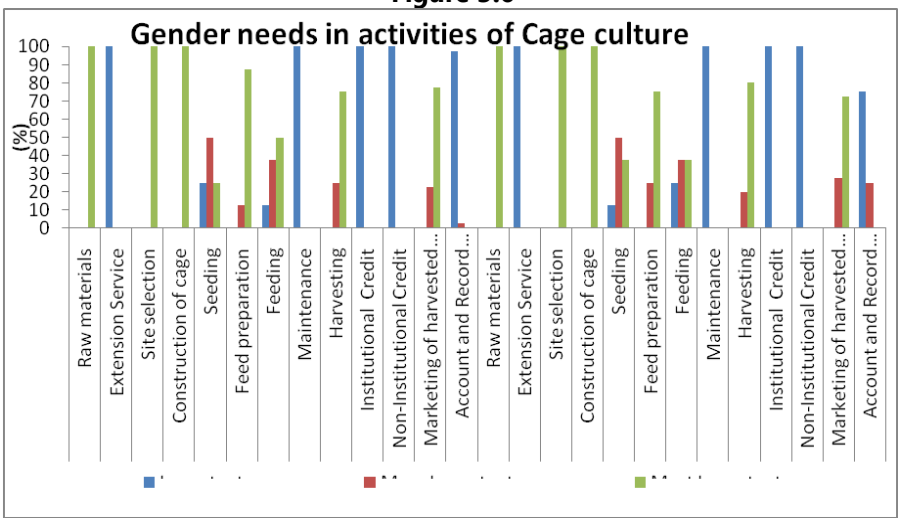
Plate 3.4 -SHG members engaged in cage farming in Vembanadu

In the same way, response to the gender needs in various activities concerned with bivalve farming of male and female separately is presented in Table 3.6. The gender response in need areas in mussel farming as per the importance assigned by male and female counterparts are presented in the table.

Table 3.6: Gender needs in activities of Cage culture

Need Area	Important		More Important		Most Important	
	Female	Male	Female	Male	Female	Male
Raw materials	0.00	0.00	0.00	0.00	100.00	100.00
Extension Service	100.00	100.00	0.00	0.00	0.00	0.00
Site selection	0.00	0.00	0.00	0.00	100.00	100.00
Construction of cage	0.00	0.00	0.00	0.00	100.00	100.00
Seeding	25.00	12.50	50.00	50.00	25.00	37.50
Feed preparation	0.00	0.00	12.50	25.00	87.50	75.00
Feeding	12.50	25.00	37.50	37.50	50.00	37.50
Maintenance	100.00	100.00	0.00	0.00	0.00	0.00
Harvesting	0.00	0.00	25.00	20.00	75.00	80.00
Institutional Credit	100.00	100.00	0.00	0.00	0.00	0.00
Non-Institutional Credit	100.00	100.00	0.00	0.00	0.00	0.00
Marketing of harvested fish	0.00	0.00	22.50	27.50	77.50	72.50
Account and Record keeping	97.50	75.00	2.50	25.00	0.00	0.00

Figure 3.6



With regard to the gender needs, the most important need area expressed by both male and female counterparts includes raw material collection, site selection and cage fabrication. Marketing of the products is the key for the success of the dynamics of these SHGs. Proper 'training on technical matters' and 'marketing aspects' is inevitable for desirable results.

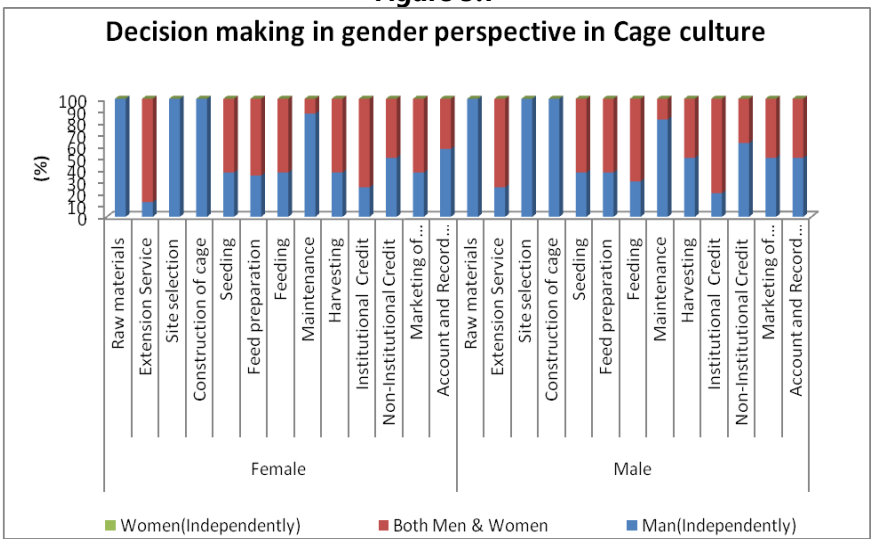
Plate3.5-SHG members in cage installation in Vembanadu Lake

Similarly, the extent of decision making in various activities concerned with cage farming as per the response of male and female separately is presented in Table 3.7. Decision making aspect of fishermen is of paramount significance with regard to marine fisheries sector in the Indian context (Srinath, 1990). The gender response in decision making in various activities in cage farming is such as female alone, male **<**female, male **=** female**,** male **>**female and male alone indicated separately by male and female are presented in Table 3.7.

Table 3.7: Decision making in gender perspective in Cage culture

Activity	Man (Independently)		Both Men & Women		Women (Independently)	
	Female	Male	Female	Male	Female	Male
Raw materials	100.00	100.00	0.00	0.00	0.00	0.00
Extension Service	12.50	25.00	87.50	75.00	0.00	0.00
Site selection	100.00	100.00	0.00	0.00	0.00	0.00
Construction of cage	100.00	100.00	0.00	0.00	0.00	0.00
Seeding	37.50	37.50	62.50	62.50	0.00	0.00
Feed preparation	35.00	37.50	65.00	62.50	0.00	0.00
Feeding	37.50	30.00	62.50	70.00	0.00	0.00
Maintenance	87.50	82.50	12.50	17.50	0.00	0.00
Harvesting	37.50	50.00	62.50	50.00	0.00	0.00
Institutional Credit	25.00	20.00	75.00	80.00	0.00	0.00
Non-Institutional Credit	50.00	62.50	50.00	37.50	0.00	0.00
Marketing of harvested fish	37.50	50.00	62.50	50.00	0.00	0.00
Account and Record keeping	57.50	50.00	42.50	50.00	0.00	0.00

Figure 3.7



It is interesting to note that, the decision making aspect on the various phases of cage farming being accomplished by 'male alone' in most of the activities as per the response of male and female without much difference. But the decision making of the activities like accounting and record keeping, seeding, feed preparation and feeding etc. are equally shared by male and female counterparts.

A comparative assessment of economic feasibility of the pearl spot and tilapia cages was also done and is presented in table 3.8, and it was found that the pearl spot cages on an average gave a Cost Benefit Ratio of 1: 3.5 and tilapia cages gave a Cost Benefit Ratio of 1: 2.5.

Table 3.8: Economic Feasibility analysis of Pearl spot and Tilapia

No	Items of expenditure	Pearlspot	Tilapia
1	Cage & Accessories	3475/-	3475/-
2	Feed	3000/-	2500/-
3	Seed	2500/-	1500/-
4	Total expenditure	8975/-	7450/-
5	Returns	31,412/-	18,750/-
6	BC ratio	3.5: 1	2.5:1

Plate 3.6-SHGs of Srayithodu unit installing the brackish water cage

An assessment of Brackish water cage farming successfully being undertaken by Self Help Groups of fisherfolk brought out a couple of valid conclusions as, it was understood that the female counterparts also do have a definite role in decision making, feed preparation, management, harvesting, sales, marketing etc. The Scales of 'Performance Assessment' and 'Empowerment Index' developed for this study have good potential for future use in other key areas on a sustainable basis. Lacunae identified in Empowerment Index computation give adequate feedback to authorities to proceed in the right direction. The gender dimension analysis on mainstreaming aspect gives sensitization on crucial issues like women fisherfolk's rights and marketing channels for policies and other interventions on gender. An exhaustive research with larger sample and wider area would be of ample scope. Interrelationships between the variables an act as catalytic points for group action and group empowerment on a sustainable basis. Success case study elucidated and brought out as a movie entitled 'Success Saga of Cage farming SHGs in *Vembanadu*' can act as a case model/practical manual for mobilizing SHGs in other allied sectors on a sustainable basis. The indicative economics of finfish farming in sea cages/ brackish water cages in India worked out is presented in Table 3.9 (Shinoj *et al,* 2017)

Table 3.9: Indicative economics of finfish farming in sea cages / brackish water cages in India, 2016

Particulars	(Sea cage of 6m diameter	(brackish water and 4m depth)	cage of 8mx4mx4m)
	Sea bass	Cobia	Sea bass
Capital expenditure (in `)			
Cage structure (GI pipe, including nets)	1,10,000	1,10,000	60,000
Expenses on mooring	15,000	15,000	10,000
Other fixed expenses (refrigerator, containers, etc.)	25,000	25,000	15,000
Gross fixed cost	1,50,000	1,50,000	85,000
Operational expenditure (in `)			
Seed cost	65,000	50,000	40,000
Feed cost	90,000	1,30,500	1,50,000
Labour charges	36,000	36,000	36,000
Harvesting charges	10,000	10,000	8,000
Boat hire and fuel charges	30,000	30,000	-
Interest on fixed capital (12%)	18,000	18,000	10,200
Annual depreciation (20%)	27,000	27,000	25,000
Miscellaneous expenditure	10,000	10,000	10,000
Gross operating cost	2,86,000	3,11,500	2,79,200
Revenue and net income (in `)			
Gross revenue	7,00,000	6,00,000	4,00,000
Net operating income	4,14,000	2,88,500	1,20,800
B:C Ratio	2.44	1.92	1.43

CHAPTER 4

Chinese Dip Net SHGs

Chinese dip net – Kumbalangi – A striking success story of women SHGs

"Women are the largest untapped reservoir of talents in the world"
-Hilary Clinton

Kumbalangi is a small island surrounded by brackish water well pronounced in Kochi. There was a period of extreme drinking water scarcity and total dependence on small wooden boats for transportation to the island. But the present generation observes Kumbalangi as a perfect island immensely rich with the presence of lakes, rivers and paddy fields proclaiming the tremendous agricultural potential. Mangrove plants thickly grown over the lakes and rivers the densely packed coconut trees on the banks of agricultural fields are the remarkable views representing the scenic beauty of the village. The view of Chinese dips nets over the lakes and rivers are a conspicuous peculiarity in the island which often enlighten the water bodies during dusk. This village which occupied a prominent position world map is simply marvelous. Around 7000 inhabitants in 5.5 km area in the village consists of diverse religions and culture. Among these, majority earns their livelihood though fishing and fish related enterprises. The famous pearl spot, crab and prawns grown in the water bodies of Kumbalangi are the delicious food items inviting attention of the foreigners to a great extent in turn making the island as a pronounced tourism village. The tow small islands in Kumabalangi are Kallancheri and Anjilithara.

Figure 4.1Map showing the locale of the study

Under Kudumbasree of Kerala State Poverty Eradication Mission, a good number of fisher folk family members have been mobilized in to organize Self Help Groups performing the micro enterprises like fish drying and value addition. In the mean time, a couple of empowered women made a divergent thinking in such a way that why can't the laborious enterprises like Chinese dip net, gill net etc. be operated by women also. As a result on 13th July, 2009, as much as twelve women of Anjilithara Chuduckad Chira location formed and SHGs named as Aiswarya and Pavizham. In the earlier phases they ventured dry fish and dry prawns. Slowly they diversified to this new pioneering venture of Chinese dip net with an initial investment of 1.5 lakhs which was equally shared among 12 members of the SHG which was practically affordable to all.

The Kumabalangi gram panchayat ensured good background assistance though Community Development Scheme (CDS). The CDS Chair person and associates gave encouragement to the venture through *Kudumbasree*. Thereby the dream of Chinese dip net by women became fruitful. As the progress was evaluated with reasonable profit margins, the groups installed the second Chinese dip net. The hectic venture believed to be operated only by men fisher folk could be easily handled by a group of confident women

fisher folk probably for the first time in the historic time line of fishery based Self help groups. It was an immense help and support to the families reflecting a spectacular economic empowerment. They even reached to dream in such a way that each member should have a Chinese dip net.

During season period, they use to get candid items like prawn, crab etc other than fishes in the nets. Off seasons also assured a continuous availability of fish items on a sustainable basis. Those will be auctioned for sale in the markets and prices will be delivered on the spot. At present they possess 2 Chinese dip nets, one small wooden boat and one gill net owned by them at their own cost worth approximately 3.5 lakhs.

In this expedition, the major aim and methodology employed from CMFRI essentially consists of extension research. Organizing farmer interactions research focusing on Gender analysis, computation of Performance level and Empowerment Index of SHGs, Economic feasibility analysis and the success case study elucidation.

The extension Research part focusing on Socio economic surveys with a pre-tested and structured data gathering protocol with standardized scale and indices. Stage by stage Video documentation in the various phases of activities of SHGs in Chinese dip net was documented. Extent of Involvement in Entrepreneurial Activity by the members like site selection, purchase/collection of raw materials, installation of Chinese dip net , net operation, storage of catch, marketing, account and record keeping and maintenance of Chinese dip net were quantified with structured interview schedule. The gender mainstreaming to assess the equity and equality of men and women counterparts of the family were separately interviewed to assess the access to resources, participation profile, decision making aspect and gender need analysis.

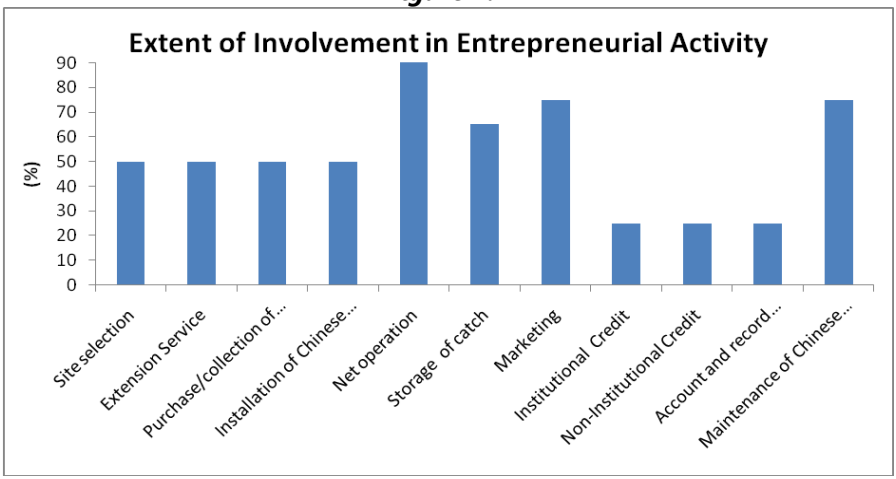
In the quantification of personal and socio-psychological characteristics, it could be observed that highest score was obtained for social participation and the least score for socio economic status. The empowerment index and level of performance of the SHGs namely Aiswarya and Pavizham were quantified with the standardized interview schedules.

The study was undertaken with the aims of undertaking gender analysis of the members of SHGs of Chinese dip net and assessing the Performance level of SHGs and Empowerment Index through appropriate scales and indices and elucidating the success case study of SHGs operating Chinese dip net. The Empowerment Index and Level of Performance of 2 SHGs namely Aiswarya and Pavizham were quantified with the standardized interview schedules. The social and economic empowerment dimensions and capacity building aspects achieved highest score in Empowerment Index in the present study. The extent of involvement in various phases of the Entrepreneurial Activity was also quantified and expressed in table. Maximum participation of the members and families was observed during net operation, marketing and maintenance of Chinese dip net.

Table 4.1 Extent of Involvement in Entrepreneurial Activity

Activity	%
Site selection	50
Extension Service	50
Purchase/collection of raw materials	50
Installation of Chinese dip net	50
Net operation	90
Storage of catch	65
Marketing	75
Institutional Credit	25
Non-Institutional Credit	25
Account and record keeping	25
Maintenance of Chinese dip net	75

Figure 4.2



An assessment of gender perspectives in terms of gender need and gender role in Chinese dip net in Kumbalangi was also done as a part of the study. All households were selected and male and female counterparts in each household were separately interviewed. The gender participation in different activities, gender needs, decision making and access and control over the resources in respect to Chinese dip net were analyzed. Opinion of men and women in above aspect was found to be similar without any significant difference. However, differential gender response was observed among SHGs. Significantly, the accounting/money transaction is under the control of women and the most important requirement perceived by both men and women are site selection, purchase/collection of raw materials, Installation of Chinese dip net, Storage of catch, marketing and Maintenance of Chinese dip net. In case of participation and need, both men and women share almost the same opinion. (Sahoo *et al*, 2009, Raghavan, 2009) Socio-economic, technological and export support requirement was analyzed for gender mainstreaming. Male and female respondents in a household were separately interviewed for getting the response of gender needs in terms of access to resources in Chinese dip net, participation in various activities, gender needs and decision making in various stages. The typology access to resources in gender response such as female alone, male **<**female, male **=** female**,** male **>**female and male is alone indicated separately for male and female respondents.

Table 4.2Access to resources for Chinese dip net unit

Resource Access	Female Alone		M<F		M=F		M>F		Male Alone		No Access	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Site selection	0	0	0	0	100	100	0	0	0	0	0	0
Extension Service	0	0	0	0	100	100	0	0	0	0	0	0
Purchase/collection of raw materials	0	0	0	0	100	100	0	0	0	0	0	0
Installation of Chinese dip net	0	0	0	0	27.27	27.27	0	0	72.73	72.73	0	0
Net operation	100	100	0	0	0	0	0	0	0	0	0	0
Storage of catch	90.91	81.82	0	0	9.09	18.18	0	0	0	0	0	0
Marketing	81.82	72.73	0	0	18.18	27.27	0	0	0	0	0	0
Institutional Credit	100	100	0	0	0	0	0	0	0	0	0	0
Non-Institutional Credit	100	100	0	0	0	0	0	0	0	0	0	0
Account and record keeping	100	100	0	0	0	0	0	0	0	0	0	0
Maintenance of Chinese dip net	18.18	27.27	0	0	81.82	72.73	0	0	0	0	0	0

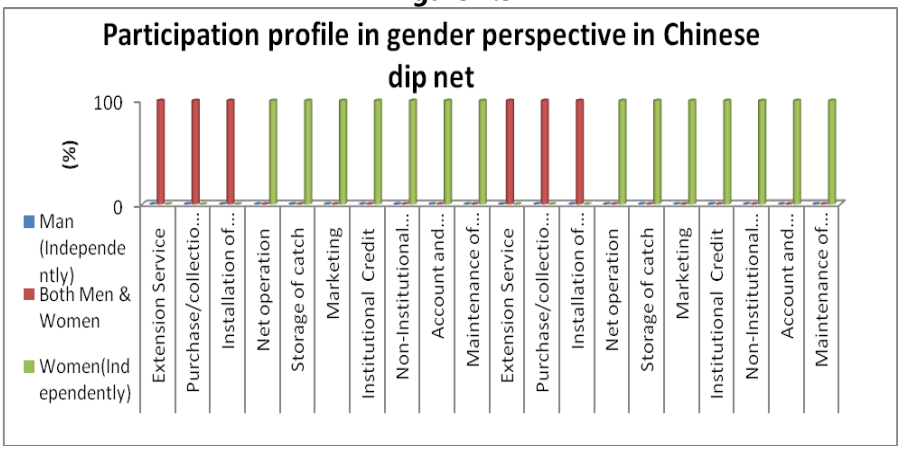
A perusal of the table clearly shows the response of male and female separately in access to resources concerned with Chinese dip net. Among the responses of female and male for the items of access to resources, most of the items are dominated by 'female alone'.

Plate 4.1-SHG members engaged in Chinese dip net operation

Table 4.3 Participation profile in gender perspective in Chinese dip net

Activity	Man (Independently)		Men and women together		Women (Independently)	
	Female	Male	Female	Male	Female	Male
Site selection	0.00	0.00	100.00	100.00	0.00	0.00
Extension Service	0.00	0.00	100.00	100.00	0.00	0.00
Purchase/collection of raw materials	0.00	0.00	100.00	100.00	0.00	0.00
Installation of Chinese dip net	0.00	0.00	100.00	100.00	0.00	0.00
Net operation	0.00	0.00	0.00	0.00	100.00	100.00
Storage of catch	0.00	0.00	0.00	0.00	100.00	100.00
Marketing	0.00	0.00	0.00	0.00	100.00	100.00
Institutional Credit	0.00	0.00	0.00	0.00	100.00	100.00
Non-Institutional Credit	0.00	0.00	0.00	0.00	100.00	100.00
Account and record keeping	0.00	0.00	0.00	0.00	100.00	100.00
Maintenance of Chinese dip net	0.00	0.00	0.00	0.00	100.00	100.00

Figure 4.3



Similarly the participation profile in various activities concerned with Chinese dip net is presented in Table. The gender response in participation in various activities such as female alone, male **<**female, male **=** female**,** male **>**female and male alone indicated separately by male and female are presented in Table.

Table 4.4 Gender needs in activities of Chinese dip net unit

Need Area	Important		More Important		Most Important	
	Female	Male	Female	Male	Female	Male
Site selection	0.00	0.00	9.09	0.00	90.91	100.00
Extension Service	72.73	90.91	9.09	9.09	18.18	0.00
Purchase/collection of raw materials	0.00	0.00	0.00	0.00	100.00	100.00
Installation of Chinese dip net	0.00	0.00	0.00	0.00	100.00	100.00
Net operation	100.00	100.00	0.00	0.00	0.00	0.00
Storage of catch	0.00	0.00	0.00	0.00	100.00	100.00
Marketing	0.00	0.00	0.00	0.00	100.00	100.00
Institutional Credit	100.00	100.00	0.00	0.00	0.00	0.00
Non-Institutional Credit	100.00	100.00	0.00	0.00	0.00	0.00
Account and record keeping	72.73	100.00	27.27	0.00	0.00	0.00
Maintenance of Chinese dip net	0.00	0.00	0.00	0.00	100.00	100.00

Figure 4.4

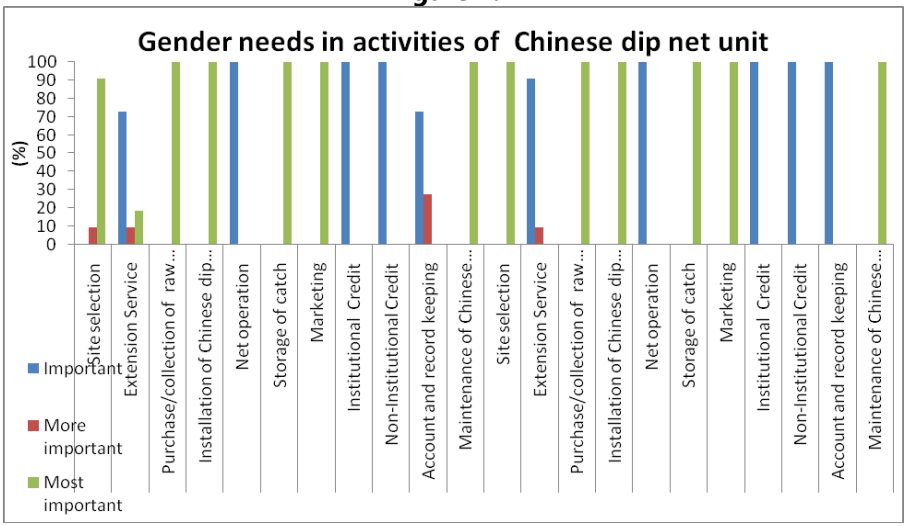


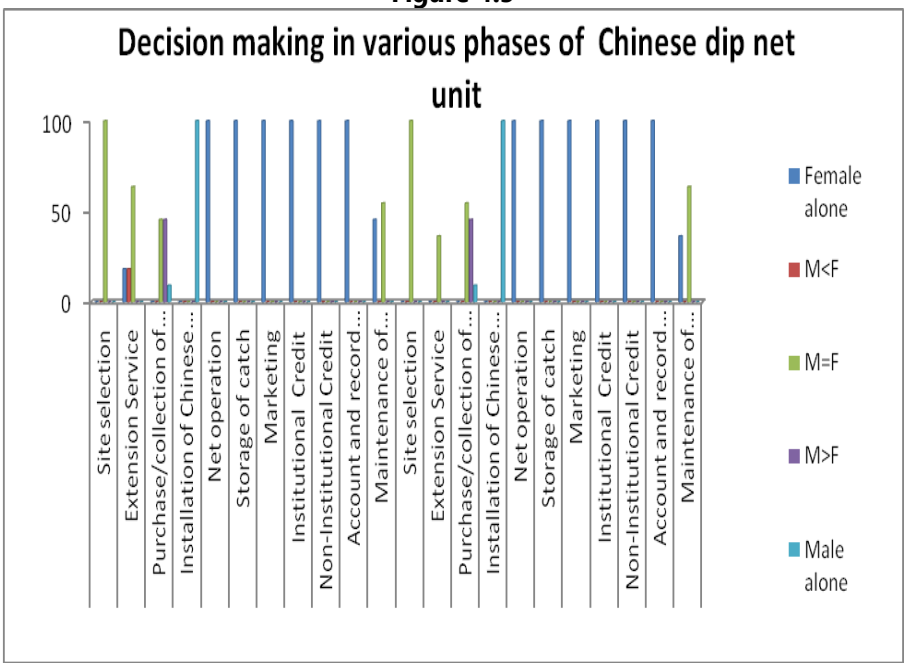
Plate 4.2 Members of SHG engaged in Chinese dip net

With regard to the gender needs, the most important need area expressed by both male and female counterparts includes raw material collection, site selection and Installation of Chinese dip net, net operation etc. Marketing of the products is the key for the success of the dynamics of these SHGs. Proper 'training on technical matters' and 'marketing aspects' is inevitable for desirable results.

Table 4.5 Decision making in various phases of Chinese dip net unit

Decision making in Activity Name	Female Alone		M<F		M=F		M>F		Male Alone	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Site selection	0	0	0	0	100	100	0	0	0	0
Extension Service	18.18	0	18.18	0	63.64	36.4	0	63.6	0	0
Purchase/collection of raw materials	0	0	0	0	45.45	54.6	45.45	45.5	9.09	0
Installation of Chinese dip net	0	0	0	0	0	0	0	0	100	100
Net operation	100	100	0	0	0	0	0	0	0	0
Storage of catch	100	100	0	0	0	0	0	0	0	0
Marketing	100	100	0	0	0	0	0	0	0	0
Institutional Credit	100	100	0	0	0	0	0	0	0	0
Non-Institutional Credit	100	100	0	0	0	0	0	0	0	0
Account and record keeping	100	100	0	0	0	0	0	0	0	0
Maintenance of Chinese dip net	45.45	36.4	0	0	54.55	63.6	0	0	0	0

Figure 4.5



It is interesting to note that, the decision making aspect on the various phases of Chinese dip net being accomplished by 'male alone' in most of the activities as per the response of male and female without much difference. But the decision making of the activities like net operation, storage of catch, marketing etc are done by female alone and installation of Chinese dip net is done by male alone and site selection is equally shared by male and female counterparts.

Plate 4.3 SHG members operating Chinese dip net

Plate 4.4 Women members operating Chinese dip net

CHAPTER 5

Aqua-tourism SHGs

Women SHGs in Vypeen: An Exquisite Venture Promoting Aqua Tourism

*"Only by binding together as a single force will be remain strong and unconquerable**."-Chris Bradford***

Vypeen in Ernakulum is simply serene and beautiful place surrounded by Greenery and water. Matsyafed of kerala state has developed an exquisite venture promoting Aqua Tourism in Narakkal and Malipuram which is situated in the heart of Vypeen Island.

Njarakkal Aqua Tourism project by Matsyafed is a huge 125 hectare brackish water fish farm. It is located at 15 kilometres from Kochi in a village called Njarakkal or Narakkal. It has four culture ponds along with three nurseries. The fish farm almost lies inside the lake of Vembanad. The major type of fishes found in the farm includes Prawns, *Karimeen* (Pearl spot), Mullets, Tilapia, Crab, Green Shell Mussels. It is a popular Eco tourism project by the Matsyafed.

Narakkal Aqua farm offers numerous facilities for spending a complete day there. You can relax on hammocks, swings or benches on the bunds under the shady coconut trees, or do some fishing or even boating. This tourist centre is a big aqua farm where you can enjoy beauty as well as learn something new about farming and fishes. You can learn a little about shrimp farming when you enjoy with your family alongside this big fish farm. Spread across an a massive area of 18 kilometers, this mesmerizing aqua farm and its brackish waters along with its alluring beauty is perhaps one of the most must visit places of Kerala. Fishing is the most important sporting activity in Narakkal Aqua fish farm. Privacy of this place is worth mentioning. It assures privacy to visitors and the panoramic beauty rejuvenates the soul.

Figure 5.1 Map showing the locale of the study

It is the project of Kerala Fisheries Department and Tsunami Emergency Assistance Program (TEAP) for uplifting the life of Fishermen community by enhancing Fish production Marketing, Technical support and Ecotourism. Mobilised women SHGs named as Souparnika in Narakkal and Vandanam in Malippuram are running the cafeteria which provides delicious homely meals and cooked fish items such as Fish Curries, Fish Fries, and Fish Pickles along with Vegetable curries.

Plate 5.1: Entrance signifying the designation of Aquatourism, Narakkal

Tourists are allowed to visit throughout the year. Fishes like Prawn, Pearl spot, Milk Fish, Mullets, Tilapia, Cat Fish, squid, Ribbon Fish, Crab, Green Shell Mussels are the important species in Farm. Currently they are exporting Fish products to the Countries like China, Korea, Japan and Middle-East.

There is an entry ticket for a reasonable amount so that the visitors can take delicious food items and an amazing ride in the boat. The Major Attractions for tourists include the availability of Hook and Bait for a first-hand Fishing experience, provision to take home the fish what they have caught for a nominal cost, Boating through the labyrinth of Canals having a rich greenery ambience, proximity to Narakkal and Malippuram Beaches which are at walkable distance, Very delicious food and option of Special Fish dishes on the particular day by paying a minimal price.

The major peculiarity of Malippuram aquatourism location is the famous 'Fish Jump" called as *meenchaattam*. The tourists can hire boats and make a ride in the lake. The fishes will be jumping to a height up to 1 metre and may even fall on the boats. They can take the fish if they want at a nominal cost.

The Extension part consists of Awareness & ECB Training programmes systematically executed and then extension research part focusing on socio economic surveys with a pre-tested and structured data gathering protocol with standardized scales and indices. Stage by stage Video documentation in the various phases of activities of SHG in hotel management was documented.

Plate 5.2 a view of Narakkal Aquatourism centre

In the extent of involvement in various stages of entrepreneurial activity of running the hotel by the members like purchasing materials, food preparation, serving, cleaning, accounts and record keeping etc. were quantified with structured interview schedule. The gender mainstreaming (Daly, 2005) to assess the equity and equality of men and women counterparts of the family were separately interviewed to assess the access to resources, participation profile, decision making aspect and gender need analysis.

For assessing the Performance level of SHGs and Empowerment Index, appropriate scales and indices already developed for the project with necessary modifications were used. The Level of Performance (NABARD,2007 & Shalumol, 2015) was assessed by the checklist containing 16 dimensions developed by NABARD such as Group size, Type of members, Number of meetings, Timings of meetings, Attendance of members, Participation of members, Savings collection within the group, Amount to be saved, Interest on internal loan, Utilization of savings amount by SHG, Loan recoveries, Maintenance of books, Accumulated savings, Knowledge of the rules of SHG, Education level, Knowledge of Govt. programs etc arranged in 3 point continuum. Similarly the Empowerment Index was quantified based on 8 dimensions (Meena *et al*, 2012) such as Confidence building, Self-esteem, Decision making pattern, Capacity building, Psychological Empowerment, Social Empowerment, Economic Empowerment and Political Empowerment. The extent of empowerment was quantified as the difference between the scores obtained as per the perception of the SHG members before and after joining the SHG. For computing the Empowerment Index, the scores obtained for each dimensions were first made uniform and that was multiplied by the weightages assigned by the judges while relevancy rating for ascertaining the content validity of the scale through scale product method. Each of the dimensions of Empowerment Index was computed by the scores of the sub-dimensions coming under the categories of these 8 dimensions.

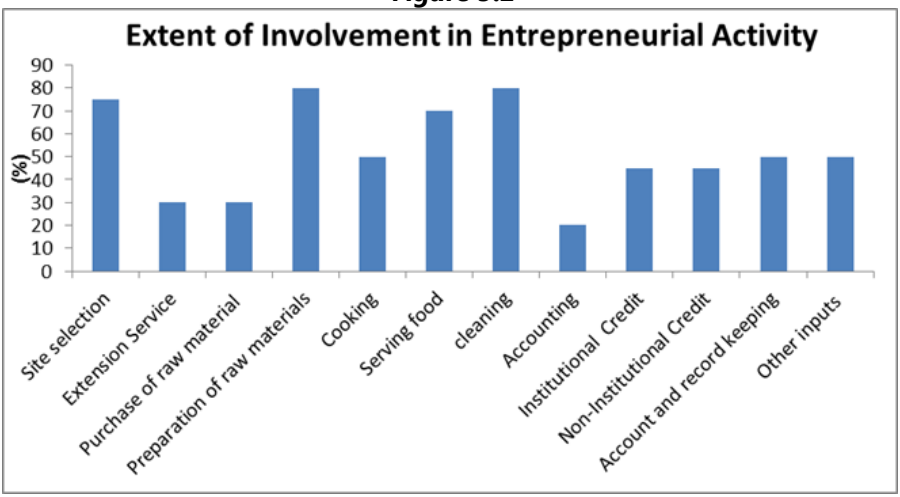
The Empowerment Index and Level of Performance of SHGs namely Souparnika in Narakkal and Vandanam in Malippuram were quantified with the standardized interview schedules. The extent of involvement in various phases of the Entrepreneurial Activity was also quantified and expressed in

Table 5.1 and Figure 5.2. Maximum participation of the members and families was observed during Site selection and marketing stages.

Table 5.1 Extent of Involvement in Entrepreneurial Activity

Activity	%
Site selection	75
Extension Service	30
Purchase of raw material	30
Preparation of raw materials	80
Cooking	50
Serving food	70
Cleaning	80
Accounting	20
Institutional Credit	45
Non-Institutional Credit	45
Account and record keeping	50
Other inputs	50

Figure 5.2



An assessment of gender perspectives in terms of gender need and gender role in the running of hotel was also done as a part of the study. All households were selected and male and female counterparts in each household were separately interviewed. The gender participation in different activities, gender needs, decision making and access and control over the resources in respect to hotel running were analyzed. Opinion of men and women in above aspect was found to be similar without any significant difference. However, differential gender response was observed among SHG. Significantly, the accounting/money transaction is under the control of women and the most important requirement perceived by both men and women is cooking.

In case of participation and need, both men and women share almost the same opinion. (Sahoo *et al*, 2009, Raghavan, 2009) Socio-economic, technological and export support requirement was analyzed for gender mainstreaming. Male and female respondents in a household were separately interviewed for getting the response of gender needs in terms of access to resources in hotel management, participation in various activities of running a hotel, gender needs and decision making in various stages. The typology access to resources in running a sea food kitchen in gender response such as female alone, male **<**female, male **=** female**,** male **>**female and male is alone indicated separately for male and female respondents.

A perusal of the table clearly shows the response of male and female separately in access to resources concerned with running a hotel. Among the responses of female and male for the items of access to resources, most of the items are dominated by 'female alone'. (Table 5.2)

Table 5.2 Access to resources for Aqua tourism

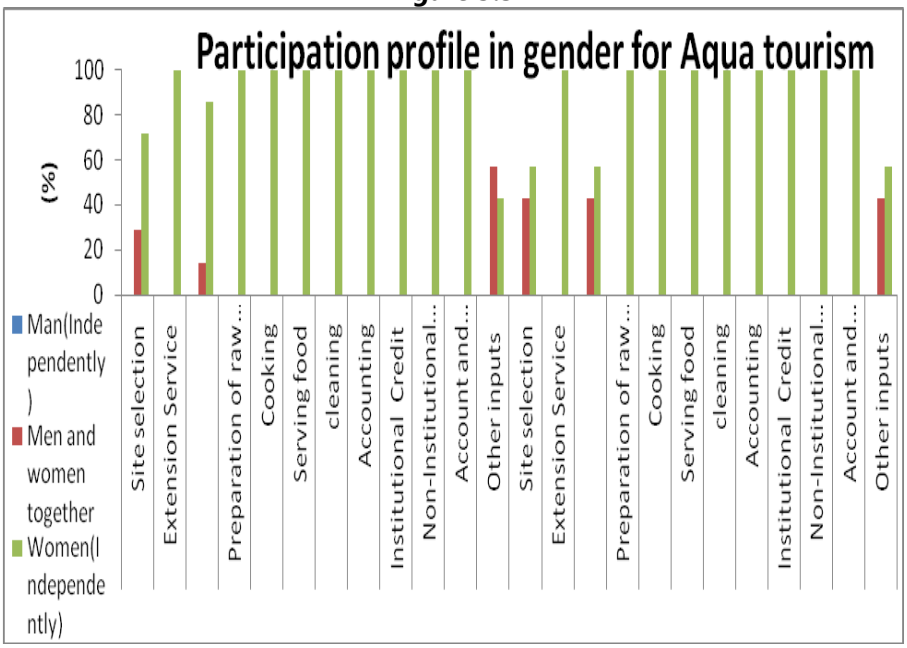
Resource Access	Female Alone		M<F		M=F		M>F		Male Alone		No Access	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Site selection	71.43	57.14	0	0	28.57	42.86	0	0	0	0	0	0
Extension Service	100	100	0	0	0	0	0	0	0	0	0	0
Purchase of raw material	57.14	42.86	0	0	42.86	57.14	0	0	0	0	0	0
Preparation of raw materials	100	100	0	0	0	0	0	0	0	0	0	0
Cooking	100	100	0	0	0	0	0	0	0	0	0	0
Serving food	100	100	0	0	0	0	0	0	0	0	0	0
Cleaning	100	100	0	0	0	0	0	0	0	0	0	0
Accounting	100	100	0	0	0	0	0	0	0	0	0	0
Institutional Credit	100	100	0	0	0	0	0	0	0	0	0	0
Non-Institutional Credit	100	100	0	0	0	0	0	0	0	0	0	0
Account and record keeping	100	100	0	0	0	0	0	0	0	0	0	0
Other inputs	28.57	42.86	0	0	71.43	57.14	0	0	0	0	0	0

Table 5.3 Participation profile in gender perspective for Aqua tourism

Activity	Man (Independently)		Men and women together		Women(Independently)	
	Female	Male	Female	Male	Female	Male
Site selection	0.00	0.00	28.57	42.86	71.43	57.14
Extension Service	0.00	0.00	0.00	0.00	100.00	100.00
Purchase of raw material	0.00	0.00	14.29	42.86	85.71	57.14
Preparation of raw materials	0.00	0.00	0.00	0.00	100.00	100.00
Cooking	0.00	0.00	0.00	0.00	100.00	100.00
Serving food	0.00	0.00	0.00	0.00	100.00	100.00
Cleaning	0.00	0.00	0.00	0.00	100.00	100.00
Accounting	0.00	0.00	0.00	0.00	100.00	100.00
Institutional Credit	0.00	0.00	0.00	0.00	100.00	100.00
Non-Institutional Credit	0.00	0.00	0.00	0.00	100.00	100.00
Account and record keeping	0.00	0.00	0.00	0.00	100.00	100.00
Other inputs	0.00	0.00	57.14	42.86	42.86	57.14

The participation profile in various activities concerned with sea food kitchen is presented in a Table 5.3 and Figure 5.3. The gender response in participation in various activities in this such as female alone, male **<**female, male **=** female**,** male **>**female and male alone indicated separately by male and female are presented in Table.

Figure 5.3



A perusal of the table clearly indicates the participation profile in gender perspective for male and female separately. It can be glanced clearly from the perusal of the table that, most of the activities are female dominating operations in running the hotel, as per the responses of both male and female. But the Site selection and marketing activities are being performed by both men and women.

Plate 5.3: A view of meenchattam in Malippuram Aquatourism centre

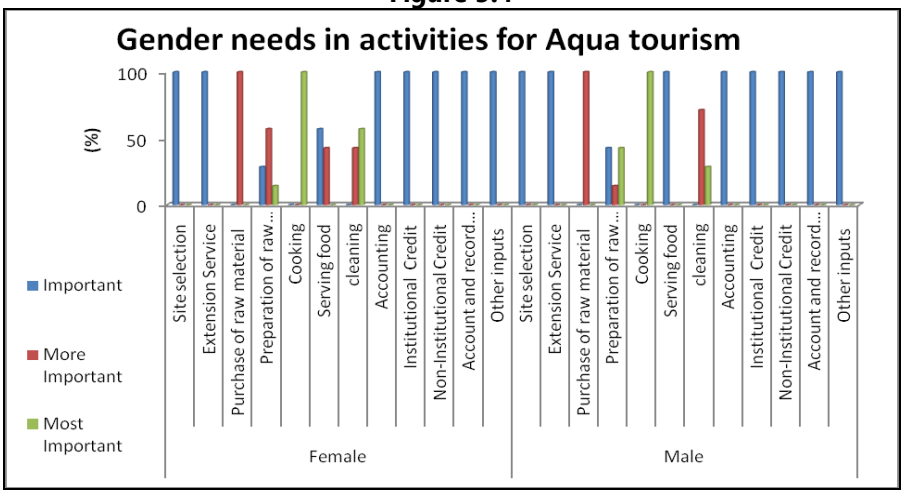
In the same way, response to the gender needs in various activities concerned with running a hotel, male and female separately is presented in below Table. The gender response in need areas in managing a hotel as per the importance assigned by male and female counterparts are presented in the table 5.4 and Figure 5.4.

Plate 5.4 SHG members in aquatourism centre running the cafeteria

Table 5.4 Gender needs in activities for Aqua tourism

Need Area	Important		More Important		Most Important	
	Female	Male	Female	Male	Female	Male
Site selection	100.00	100.00	0.00	0.00	0.00	0.00
Extension Service	100.00	100.00	0.00	0.00	0.00	0.00
Purchase of raw material	0.00	0.00	100.00	100.00	0.00	0.00
Preparation of raw materials	28.57	42.86	57.14	14.29	14.29	42.86
Cooking	0.00	0.00	0.00	0.00	100.00	100.00
Serving food	57.14	100.00	42.86	0.00	0.00	0.00
Cleaning	0.00	0.00	42.86	71.43	57.14	28.57
Accounting	100.00	100.00	0.00	0.00	0.00	0.00
Institutional Credit	100.00	100.00	0.00	0.00	0.00	0.00
Non-Institutional Credit	100.00	100.00	0.00	0.00	0.00	0.00
Account and record keeping	100.00	100.00	0.00	0.00	0.00	0.00
Other inputs	100.00	100.00	0.00	0.00	0.00	0.00

Figure 5.4



With regard to the gender needs, the most important need area expressed by both male and female counterparts includes cooking and cleaning. Cooking of the food items is the key for the success of the dynamics of the SHG. Proper 'training on technical matters' and 'marketing aspects' is inevitable for desirable results.

Plate 5.5 SHG members in aquatourism centre engaged in preparation of food

Plate 5.6 Homely meals preparation by Sauparnika SHG members

The decision making aspect in various phases of Aquatourism were presented in Table 5.5 and Figure 5.5.

Table 5.5 Decision making in various phases for Aqua tourism

Activity	Female Alone		M<F		M=F		M>F		Male Alone	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Site selection	100	100	0	0	0	0	0	0	0	0
Extension Service	100	100	0	0	0	0	0	0	0	0
Purchase of raw material	57.14	42.86	0	0	42.86	57.14	0	0	0	0
Preparation of raw materials	100	100	0	0	0	0	0	0	0	0
Cooking	100	100	0	0	0	0	0	0	0	0
Serving food	100	100	0	0	0	0	0	0	0	0
Cleaning	100	100	0	0	0	0	0	0	0	0
Accounting	100	100	0	0	0	0	0	0	0	0
Institutional Credit	100	100	0	0	0	0	0	0	0	0
Non-Institutional Credit	100	100	0	0	0	0	0	0	0	0
Account and record keeping	100	100	0	0	0	0	0	0	0	0
Other inputs	28.57	28.57	0	0	71.43	71.43	0	0	0	0

Based on the aspects of decision making in various activities, it is observed that the only activity in this enterprise in which men counterparts are involved is purchasing of raw materials. Apart from this all the major activities like cooking, serving, cleaning accounting, etc are performed by female counter parts. An assessment of sea food kitchen successfully being undertaken by Self Help Group of fisherfolk brought out a couple of valid conclusions as, it was understood that the female counterparts also do have a definite role in site selection, purchase of accessories, cooking, serving, cleaning, marketing etc. The Scales of 'Performance Assessment' and 'Empowerment Index' developed for this study have good potential for future use in other key areas on a sustainable basis. Lacunae identified in Empowerment Index computation give adequate feedback to authorities to proceed in the right direction.

Figure 5.5

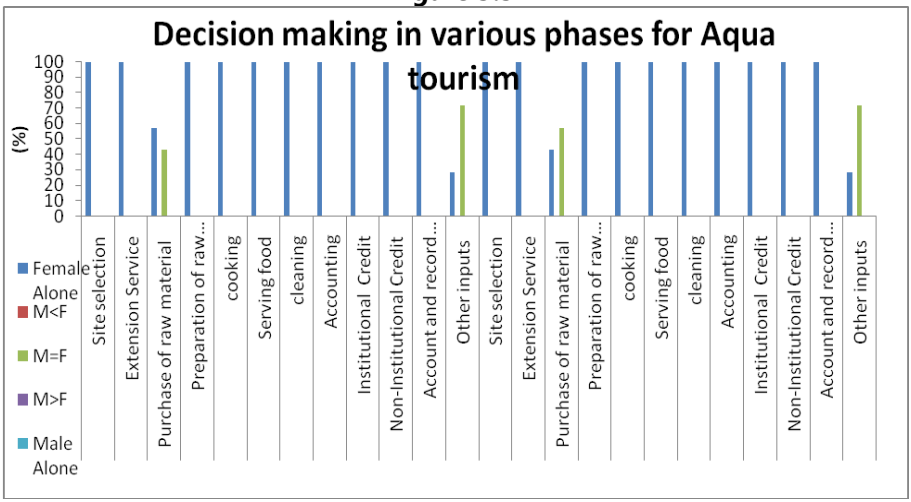


Plate 5.7 Narakkal aquatourism centre

Table 5.6: Economic feasibility analysis of aqua tourism SHG units

Sl No	Fixed Expenditure	2012		2013		2014		2015		2016	
	Items	Units	Value	Units	Value	Units	Value	Units	Value	Units	Value
1.	Single Burner Gas stove	2	23000								
2.	Community Choola	1	10000								
3.	Work Table SS	2	18000								
4.	Griller Dosa Plate	1	19000								
5.	2 Sink Unit	1	17000								
6.	Refrigerator	1	14000								
7.	Wet Grinder	1	12000								
8.	Freezer with glass top	1	17600								
9.	Furniture		105700								
10.	Wooden Almirah	6	25950								
11.	Utensils, Serving Wares		97000								
	Fixed Cost (Rs.)		**359250**								
	Variable Expenditure										
1.	Provision Items Fish,Milk, Meat etc.		318000		435800		448500		618600		737000
2.	LPG		300000		300000		300000		385000		393000
3.	Firewood		31000		32500		34500		35800		38900
4.	Labour Charge (Rs.1925 for 300 man days)		577500		577500		577500		577500		577500
5.	Room Rent		24000		24000		24000		24000		24000
6.	Electricity Charge		60000		60400		62400		73600		84300
7.	Water Charge		9000		9500		9700		8900		11840
8.	Packing Materials		40000		53000		59000		61600		68200
9.	Office supplies		5500		5450		4980		4900		6200
10	Transportation		30000		35000		33500		52000		67200
11.	Telephone		2400		2500		2600		2600		2600
12.	Miscellaneous		4000		4500		4600		4700		4650
	Operating Cost (Rs.)		**1401400**		**1540150**		**1561280**		**1849200**		**2015390**
	Interest on fixed cost (10% /annum)		35925		35925		35925		35925		35925
	Deprecation (10% /annum)		35925		35925		35925		35925		35925
	Total Variable Cost (Rs.)		**1473250**		**1612000**		**1633130**		**1921050**		**2087240**

Return stream

Sl no.	Items	Units	Value in Rs.	Units	Value in Rs.	Units	Value in Rs.	Units	Value in Rs.	Units	Value in Rs.
1	Fish curry meals (Quantity in numbers, Values in Rs.)	9450	567000	10750	645000	13580	882700	15780	1025700	16130	1048450
2	Non Veg items (Quantity in numbers, Values in Rs.)	9040	723200	10100	808000	13600	1088000	15690	1255200	16750	1340000
3	Veg /Egg items (Quantity in numbers, Values in Rs.)	1580	47400	1675	50250	8760	262800	9570	287100	12330	369900
4	Breakfast Items (Quantity in numbers, Values in Rs.)	5160	154800	5310	159300	5530	165900	8385	251550	11250	337500
5	Tea snacks (Quantity in numbers, Values in Rs.)	2760	19320	3320	23240	4390	30730	9820	68740	10250	71750
6	Hot beverages (Quantity in numbers, Values in Rs.)	2400	19200	3615	28920	4350	34800	9940	79520	14460	115680
7	Cold beverages (Quantity in numbers, Values in Rs.)	1080	21600	1150	23000	1750	35000	6430	128600	14860	297200
	Gross Return		**1552520**		**1737710**		**2499930**		**3096410**		**3580480**
	Net Returns		**79270**		**125710**		**866800**		**1175360**		**1493240**

The gender dimension analysis on mainstreaming aspect gives sensitization on crucial issues like women fisher folk's rights and marketing channels for policies and other interventions on gender. An exhaustive research with larger sample and wider area would be of ample scope. Inter relationships between the variables an act as catalytic points for group action and group empowerment on a sustainable basis.

The Business Plan representing the indicative economics (Table 5.6) shows The Average Operating cost for the venture on Aqua tourism by SHGs was Rs. 1673484/- and Average Annual Net Return was found to be Rs. 748076/-. The total Fixed Cost was estimated to be Rs 359250/-. The fixed cost was

incurred only in the first year. The Break Even Point (BEP) (Fixed cost/ (Price per unit—Variable cost per unit) was estimated to be 29938 (Quantity). The success case study can be used as a practical manual for SHGs.

Plate 5.8 Vandanam SHG in aquatourism in Malippuram

Plate 5.9 Meenchattam in Malippurm Aquatourism centre

CHAPTER 6

Ferti-fish SHGs

Fertifish SHG – Engandiyoor, Thrissur

*"Alone we can do so little, together we can do so much"-**Helen Keller***

Engandiyoor is one of the coastal villages in Vadanappally panchayat of Thrissur district. This village shares borders with Orumanayur Panchayath on the north side and Vadanapilly Panchayath on the south side. On the west side is the Arabian Sea and to the east, Canoli Canal.

Figure 6.1 Map showing the locale of the study

People in this area mainly depend on fishing, fishery related activities and agriculture for their livelihood. Women only involving in fish selling, small scale agriculture etc. Apart from their traditional job pattern a group of empowered women thought differently and introduced a new reliable area. Under the guidance and supervision of Society for Assistance to Fisherwomen (SAF), working under the department of fisheries, Kerala as a first step they formed *Prakruthisree* and *Jaivasree* Self Help Group consisting four members in each.

In this century, profit oriented agriculture practices using immense chemical fertilizers converting our agriculture land infertile areas these women recognized the need and reliability of bio-fertilizers for the existence of

agriculture, fertile land as well as human life. They made a successful step in the production of biofertilisers from fish. It is seen as a possible solution to the issue of disposing large quantities of fish waste generated by the fishing industries and processing units, gets the KAU nod; the product could be marketed across the country. According to official estimates, almost half of the total fish catch is expelled as waste. Annually an estimated 3 million tonnes of waste is generated as fish and fish parts. But since this waste is rich in organic proteins, it is has tremendous scope as livestock feeds and as fertilizers. Raw fish has been traditionally used as fertilizer in Kerala. But they are often shunned due to the stench or handling difficulties. But a product like this is both handy. Even in the processing stages there is no foul smell or any other related difficulties.

As first step group members collect small fishes of low economic value from harbors, sardines, fish wastes from markets. And thoroughly mixing fishes with jiggery in a ratio of 3:1 and keeping the mixture in air tight containers for a period of average 50 days (Varies with the species and size of fishes). The obtained slurry is mixing with coir pith in a ratio of 3:1after sun drying they pack the fertifish in polythene bag possessing brand name and other details of the product. The extent of involvement in fertifish units by SHG members is shown in Table 6.1 and figure 6.2.

Table 6.1 Extent of Involvement in Entrepreneurial Activity

Activity	%
Site selection	75
Extension Service	50
Purchase/collection of fish or fish wastes	90
Mixing with jaggery	80
Mixing with coir pith	50
Drying	70
Sieving	80
Packing and labeling	75
Marketing	75
Accounting	50
Institutional Credit	50
Non-Institutional Credit	50
Account and record keeping	50
Other inputs	50

Figure 6.2

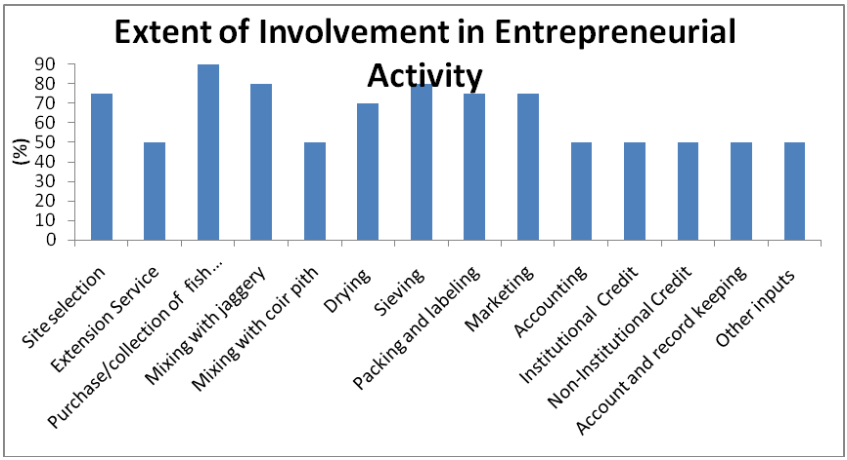


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Plate 6.1 SHG leader Maheswari in the Fertifish unit in Engandiyoor

Plate.6.2 Preparation of fertifish by SHG members

Table 6.2 Access to resources for Fish fertilizer Unit

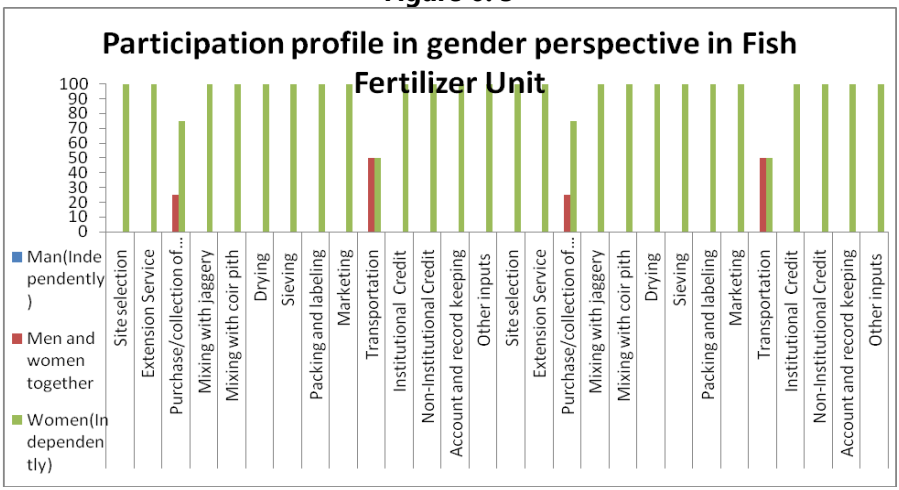
Resource Access	Female Alone		M<F		M=F		M>F		Male Alone		No Access	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Site selection	100	100	0	0	0	0	0	0	0	0	0	0
Extension Service	100	100	0	0	0	0	0	0	0	0	0	0
Purchase/collection of fish or fish wastes	75	50	0	0	25	50	0	0	0	0	0	0
Mixing with jaggery	100	100	0	0	0	0	0	0	0	0	0	0
Mixing with coir pith	100	100	0	0	0	0	0	0	0	0	0	0
Drying	100	100	0	0	0	0	0	0	0	0	0	0
Sieving	100	100	0	0	0	0	0	0	0	0	0	0
Packing and labeling	100	100	0	0	0	0	0	0	0	0	0	0
Marketing	100	100	0	0	0	0	0	0	0	0	0	0
Transportation	75	75	0	0	25	25	0	0	0	0	0	0
Institutional Credit	100	100	0	0	0	0	0	0	0	0	0	0
Non-Institutional Credit	100	100	0	0	0	0	0	0	0	0	0	0
Account and record keeping	100	100	0	0	0	0	0	0	0	0	0	0
Other inputs	100	100	0	0	0	0	0	0	0	0	0	0

Access to resources in fertifish unit is shown in Table 6.2 and participation profile in Table 6.3 and figure 6.3. The important activities like mixing fish with jaggery, mixing with coir pith, drying, sieving, marketing etc are being accessed by female counterparts and some activities which are difficult to women, like fish waste collection, transportation etc. are being done along with men participation. It is an exquisite observation that, the major activities of this enterprise are being undertaken through women counterparts of the families.

Table 6.3 Participation profile in gender perspective in Fish Fertilizer Unit

Activity	Man (Independently)		Men and women together		Women (Independently)	
	Female	Male	Female	Male	Female	Male
Site selection	0	0	0	0	100	100
Extension Service	0	0	0	0	100	100
Purchase/collection of fish or fish wastes	0	0	25	25	75	75
Mixing with jaggery	0	0	0	0	100	100
Mixing with coir pith	0	0	0	0	100	100
Drying	0	0	0	0	100	100
Sieving	0	0	0	0	100	100
Packing and labeling	0	0	0	0	100	100
Marketing	0	0	0	0	100	100
Transportation	0	0	50	50	50	50
Institutional Credit	0	0	0	0	100	100
Non-Institutional Credit	0	0	0	0	100	100
Account and record keeping	0	0	0	0	100	100
Other inputs	0	0	0	0	100	100

Figure 6. 3



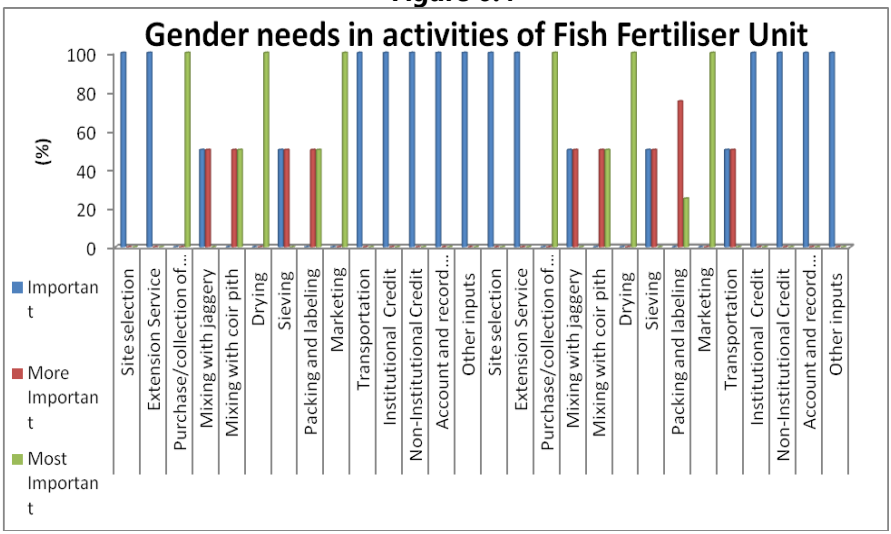
From the study, it was obvious that the participation of women was conspicuous in the activities like Mixing fish with jaggery, coir pith, Drying, Sieving, Packing and labeling, Marketing etc. The dependence on male counterpart was essentially for the activities like purchase of raw materials and transportation of fertifish. The gender needs profile examination (table 6.4 and Figure 6.4) shows the most important need of unanimous opinion of men and women together as Purchase/collection of fish or fish wastes, drying, marketing.

Plate.6.3 Fish fertilizer being dried up

Table 6.4 Gender needs in activities of Fish Fertilizer Unit

Need Area	Important		More Important		Most Important	
	Female	Male	Female	Male	Female	Male
Site selection	100	100	0	0	0	0
Extension Service	100	100	0	0	0	0
Purchase/collection of fish or fish wastes	0	0	0	0	100	100
Mixing with jaggery	50	50	50	50	0	0
Mixing with coir pith	0	0	50	50	50	50
Drying	0	0	0	0	100	100
Sieving	50	50	50	50	0	0
Packing and labeling	0	0	50	75	50	25
Marketing	0	0	0	0	100	100
Transportation	100	50	0	50	0	0
Institutional Credit	100	100	0	0	0	0
Non-Institutional Credit	100	100	0	0	0	0
Account and record keeping	100	100	0	0	0	0
Other inputs	100	100	0	0	0	0

Figure 6.4



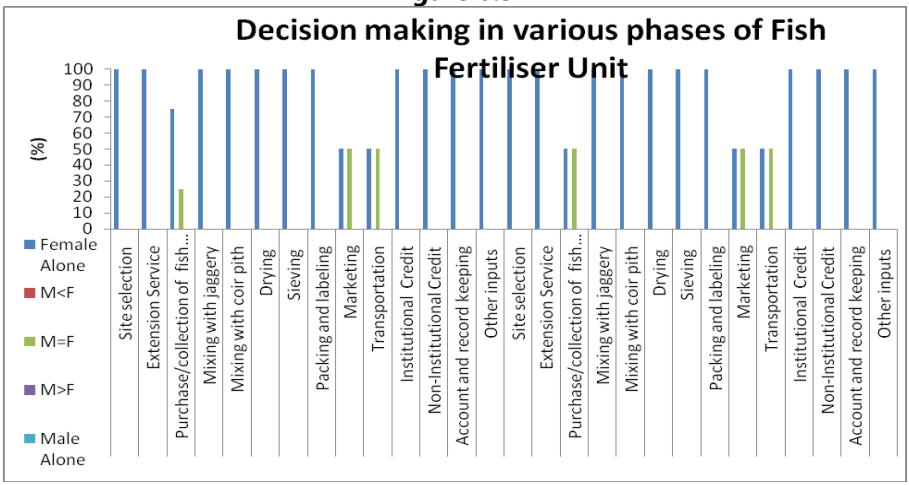
Similarly, the decision making profile in various phases of Fish Fertilizer Unit when observed, (Table 6.5 and Figure 6.5) it could be inferred that, most of the decisions on major activities are female dominated except for a bit laborious activities like marketing and transportation, for which men counterparts also play a role equal to female in decision making.

Plate 6.4 Drying of fertifish in sun

Table 6.5 Decision making in various phases of Fish Fertilizer Unit

Activity	Female Alone		M<F		M=F		M>F		Male Alone	
	F	M	F	M	F	M	F	M	F	M
Site selection	100	100	0	0	0	0	0	0	0	0
Extension Service	100	100	0	0	0	0	0	0	0	0
Purchase/collection of fish or fish wastes	75	50	0	0	25	50	0	0	0	0
Mixing with jaggery	100	100	0	0	0	0	0	0	0	0
Mixing with coir pith	100	100	0	0	0	0	0	0	0	0
Drying	100	100	0	0	0	0	0	0	0	0
Sieving	100	100	0	0	0	0	0	0	0	0
Packing and labeling	100	100	0	0	0	0	0	0	0	0
Marketing	50	50	0	0	50	50	0	0	0	0
Transportation	50	50	0	0	50	50	0	0	0	0
Institutional Credit	100	100	0	0	0	0	0	0	0	0
Non-Institutional Credit	100	100	0	0	0	0	0	0	0	0
Account and record keeping	100	100	0	0	0	0	0	0	0	0
Other inputs	100	100	0	0	0	0	0	0	0	0

Figure 6.5



From decision making profile, it is evident that, in important activities including site selection, extension, sieving, drying, mixing with jaggery, mixing with coir pit, packing and labeling, arranging institutional credit, non-institutional credit, account and record keeping etc. were decided by female counter part. In activities like Purchase/collection of fish or fish wastes, Marketing and transportation men and women unanimously involved in decision making.

Plate 6.5 Packing of fertifish

Table 6.6 Economic Feasibility Analysis of Fertifish SHGs

Sl. No.	Fixed Expenditure	2013		2014		2015		2016	
	Items	**Units**	**Value in Rs.**	**Units**	**Value in Rs.**	**Units**	**Value in Rs.**	**Units**	**Value in Rs.**
1	FRP Cans (Quantity in numbers and value in Rupees)	10	5200						
2	Plastic Sheet(Quantity in numbers and value in Rupees)	5	1250						
3	Sieve		750						
4	FRP Tank (Quantity in numbers and value in Rupees)	3	45000						
5	Weigh Balance(Quantity in numbers and value in Rupees)	1	6000						
6	Sealing Machine(Quantity in numbers and value in Rupees)	1	3000						
7	Trays(Quantity in numbers and value in Rupees)	3	150						
8	Miscellaneous		500						
	Fixed Cost (Rs.)		**61850**						
	Variable Expenditure								
1	Raw Fish (Quantity in Kg and value in Rupees)	1000	18000	1000	17200	1000	17400	1000	19300
2	Fish Waste (Quantity in Kg and value in Rupees)	1000	2000	1000	2000	1000	2000	1000	2000
3	Coir Pith (Quantity in Kg and value in Rupees)	600	12000	600	10000	600	10000	600	10000
4	Jaggery (Quantity in Kg and value in Rupees)	2000	50000	2000	40000	2000	40000	2000	40000
5	Rent(1500 per month)		15000		15000		15000		15000
6	Labelling(Quantity in Sheets and value in Rupees)	160	4800	160	4800	150	4500	125	3750
7	Labour Charge		60000		60000		60000		60000
8	Transportation		20000		21000		18900		19000
9	Miscellaneous		2000		1850		2100		2500
	Operating Cost (Rs.)		**183800**		**171850**		**169900**		**171550**
8	Interest on fixed cost (10%/annum)		6185		6185		6185		6185
9	Deprecation (10% /annum)		6185		6185		6185		6185
	Total Variable Cost		**196170**		**184220**		**182270**		**183920**

Return Stream

	Items	Units	Value in Rs.	Units	Value in Rs.	Units	Value in Rs.	Units	Value in Rs.
1	Fertifish (250 gm)(Quantity in Kg, Value in Rs.)	2000	180000	1900	171000	1950	175500	2060	185400
2	Fertifish (5 kg) (Quantity in Kg,Value in Rs.)	60	108000	52	93600	44	79200	55	99000
	Gross Return		**288000**		**264600**		**254700**		**284400**
	Net Returns		**91830**		**80380**		**72430**		**1000480**

The Economic Feasibility Analysis of Fertifish SHGs representing the indicative economics is presented in Table 6.6. The Average Operating cost for the venture on Fertifish by SHGs was Rs. 174275 /- and Average Annual Net Return was found to be Rs. 86280 /-. The total Fixed Cost was estimated to be Rs 61850/-. The fixed cost was incurred only in the first year. The main components of the Fixed Cost involved were FRP Cans, Plastic Sheet, Sieve, FRP Tank, Weigh Balance, Sealing Machine, Trays. Among the variable cost components, raw fish, coir pith and jaggery contributed the most. These products were available in two quantities fertifish (250 gm and 5 Kg). The Break Even Point (BEP) (Fixed cost/ (Price per unit—Variable cost per unit) was estimated to be 1145 (Quantity). Fertifish is being used as a best fertilizer for vegetable, ornamental plants etc. apart from a fertilizer it serving as an insecticide. From locally available cheap raw materials these women making a profitable outcome and this can be considered as a perfect model for other self-help groups.

CHAPTER 7

Quarry Fish Farming SHGs

Fish Farming in Quarry

*"Thinking is the capital, enterprise is the way, and hard work is the solution"-**Dr. A. P. J. Kalam***

Perumbavoor is a municipality in Ernakulum District in the Indian state of Kerala. It lies in the North Eastern tip of the Greater Cochin area and is also the headquarters of Kunnathunad Taluk. Perumbavoor is famed in the state for wood industries and small-scale industries. Ernakulam lies 33 km southwest of Perumbavoor. The town lies between Angamaly and Muvattupuzha on the Main Central Road (MC), which connects Thiruvananthapuram to Angamaly through the old Travancore part of Kerala. Perumbavoor lies in the banks of rivers Periyar and Muvattupuzha. Perumbavoor is the land of merchant's and business.

Figure 7.1 Map showing the locale of the study

The Periyar River flowing through rocks and between dense rain forests is an amazing sight. The vast view of distant green hillocks and the tranquility around the place is really great. This is *Paniyeli Poru*, a serene, scenic picnic spot. It forms part of the Periyar River and is located at Paniyeli, Vengoor near Perumbavoor. The river 'Periyar' flowing in between two main lands 'Malayattoor' in the north and 'Paniyeli' in the south, provides a panoramic view to the visitors. Paniyeli is a small beautiful village which made its significant place in Ernakulam tourism map. The presence of the famous water fall "*Paniyelil Poru*" makes this place as the favorite destination of tourists.

A group of youngsters who had a strong determination to uplift their livelihood got mobilized into an SHG named as Samanwaya. Co-operation, dedication and hard work are the major characteristics of this group. They successfully undertook the farming of fish in these quarries. As a result of these youngsters hard work, the quarries turn into a money-spinner. The quarries are the large reservoirs of fresh water. They first cleaned these quarries which is about 10 cents areas. Then they introduced the fish seeds into these quarries. The regular feeding and maintenance led to success. Even though all the members in this SHG have other jobs, they find time for fish farming.

For the first time as an experiment they have selected "African cat fish" for farming as the candidate species in the quarry. When they got support from their family, the fish feeding and maintenance became an easy task. Finding markets for fishes which weigh more than 1Kg within 8 months was a big challenge in front of them. The step by step harvesting was not possible in this case. So, the harvested fishes have to be marketed on the same day. When we compare the investment, hard work and profit it was seen that, it is a promising income generating venture. When they succeed in their first venture, they have decided to expand it to vast areas in the further steps. The extent of involvement in quarry fish farming is presented in Table 7.1 and Figure 7.2.

Table 7.1 Extent of Involvement in Entrepreneurial Activity

Activity	Per cent
Preparation of quarry	80
Purchase of raw materials	35
Seeding	50
Feeding	30
Maintenance	50
Harvesting	90
Transportation	50
Marketing	45
Account and Record keeping	25
Institutional Credit	35
Non-Institutional Credit	35
Other inputs	50

Figure 7. 2

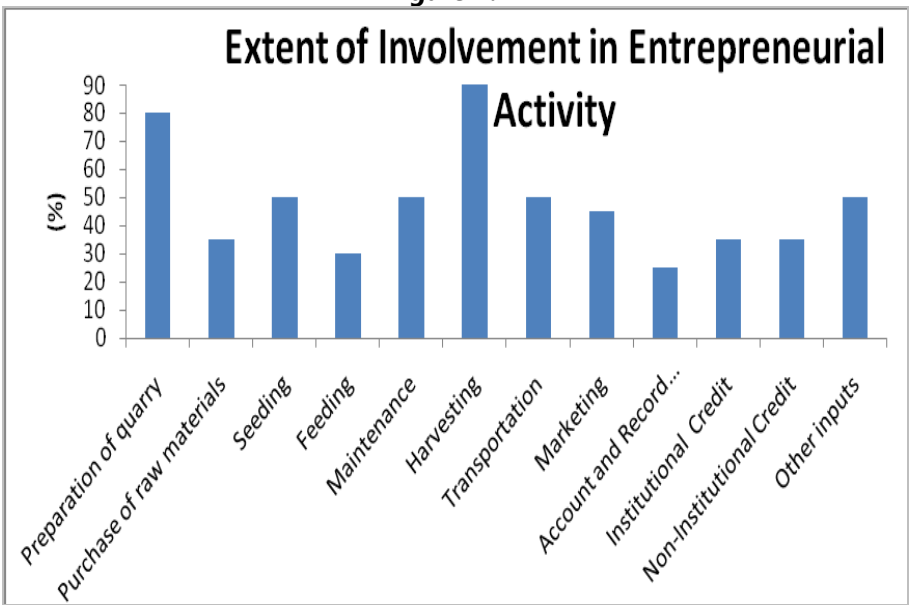


Plate 7.1 Samanwaya SHG members engaged in quarry fish farming

Table 7.2 Access to resources for Quarry fish culture

Resource Access	Female Alone		M<F		M=F		M>F		Male Alone		No Access	
	F	M	F	M	F	M	F	M	F	M	F	M
Preparation of quarry	0	0	0	0	0	0	0	0	100	100	0	0
Purchase of raw materials	0	0	0	0	0	0	0	0	100	100	0	0
Seeding	0	0	0	0	40	33.33	0	0	60	66.67	0	0
Feeding	73.33	60	0	0	26.67	20	0	0	0	20	0	0
Maintenance	0	0	0	0	16.67	3.33	0	0	83.33	96.67	0	0
Harvesting	0	0	0	0	66.67	66.67	0	6.67	33.33	26.67	0	0
Transportation	0	0	0	0	10	3.33	0	0	90	96.67	0	0
Marketing	0	0	0	0	83.33	66.67	0	16.67	16.67	16.67	0	0
Account and Record keeping	0	0	56.67	26.67	26.67	36.67	3.33	16.67	13.33	20	0	0
Institutional Credit	0	0	0	0	66.67	66.67	10	13.33	23.33	20	0	0
Non-Institutional Credit	0	0	0	0	100	100	0	0	0	0	0	0
Other inputs	0	0	0	0	100	100	0	0	0	0	0	0

The access to resources is presented in Table 7.2 and Participation profile in Table 7.3 and Figure 7.3. Most important activities of the unit such as preparation of quarry, purchase of raw materials etc. are managed by male counterparts only. Other activities such as seeding, feeding, maintenance, harvesting, marketing are undertaken by both men and women.

Table 7.3 Participation profile in gender perspective in Quarry fish culture

Activity	Man (Independently)		Both Men & Women		Women (Independently)	
	Female	Male	Female	Male	Female	Male
Preparation of quarry	100.00	100.00	0.00	0.00	0.00	0.00
Purchase of raw materials	93.33	96.67	6.67	3.33	0.00	0.00
Seeding	16.67	33.33	83.33	66.67	0.00	0.00
Feeding	0.00	0.00	20.00	33.33	80.00	66.67
Maintenance	96.67	100.00	3.33	0.00	0.00	0.00
Harvesting	30.00	33.33	70.00	66.67	0.00	0.00
Transportation	83.33	66.67	16.67	33.33	0.00	0.00
Marketing	33.33	16.67	66.67	83.33	0.00	0.00
Account and Record keeping	0.00	0.00	100.00	100.00	0.00	0.00
Institutional Credit	16.67	33.33	83.33	66.67	0.00	0.00
Non-Institutional Credit	0.00	0.00	100.00	100.00	0.00	0.00
Other inputs	0.00	0.00	100.00	100.00	0.00	0.00

The participation profile it is seen that, men and women do have equal responsibility in being part of the activities in quarry fish farming such as seeding, harvesting, marketing, account and record keeping, institutional and non-institutional credit and other inputs.

Figure 7.3

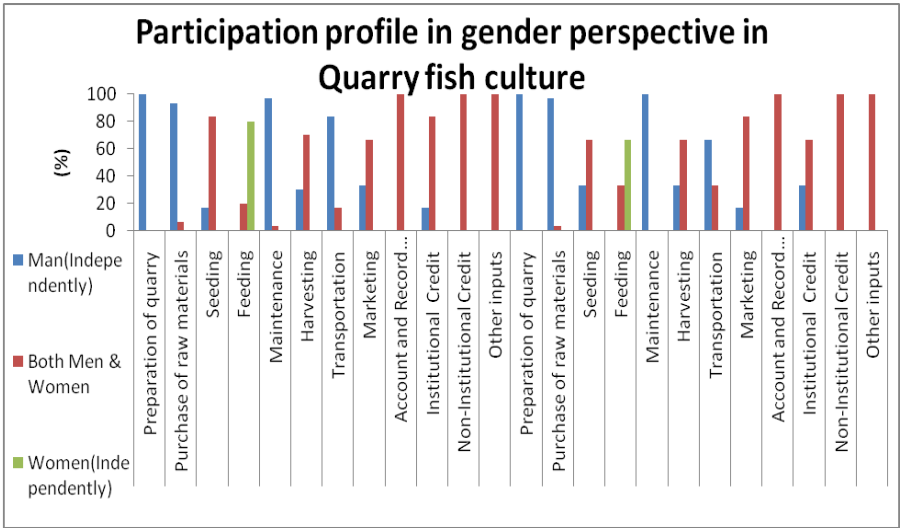


Plate-7.2 Fish farming in quarry in Paniyelil

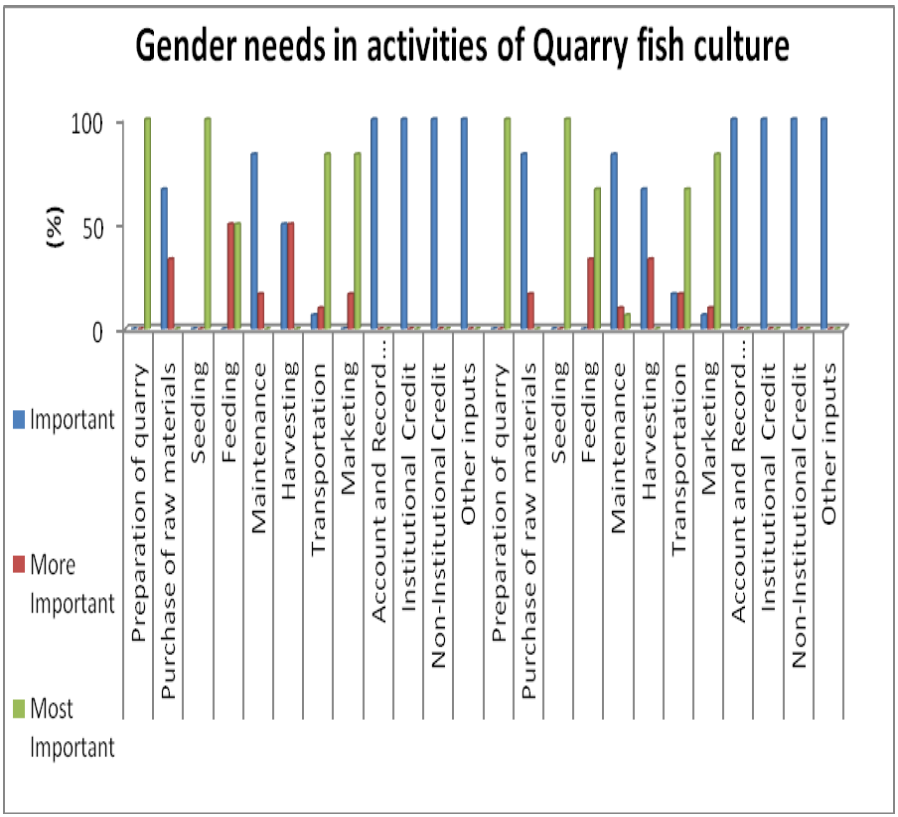
Plate 7.3 SHG leader in fishing operation in Quarry fish farming

The gender needs are presented in Table 7.4 and Figure 7.4.

Table 7.4 Gender needs in activities of Quarry fish culture

Need Area	Important		More Important		Most Important	
	F	M	F	M	F	M
Preparation of quarry	0	0	0	0	100	100
Purchase of raw materials	66.67	83.33	33.33	16.67	0	0
Seeding	0	0	0	0	100	100
Feeding	0	0	50	33.33	50	66.67
Maintenance	83.33	83.33	16.67	10	0	6.67
Harvesting	50	66.67	50	33.33	0	0
Transportation	6.67	16.67	10	16.67	83.33	66.67
Marketing	0	6.67	16.67	10	83.33	83.33
Account & Record keeping	100	100	0	0	0	0
Institutional Credit	100	100	0	0	0	0
Non-Institutional Credit	100	100	0	0	0	0
Other inputs	100	100	0	0	0	0

Figure 7.4



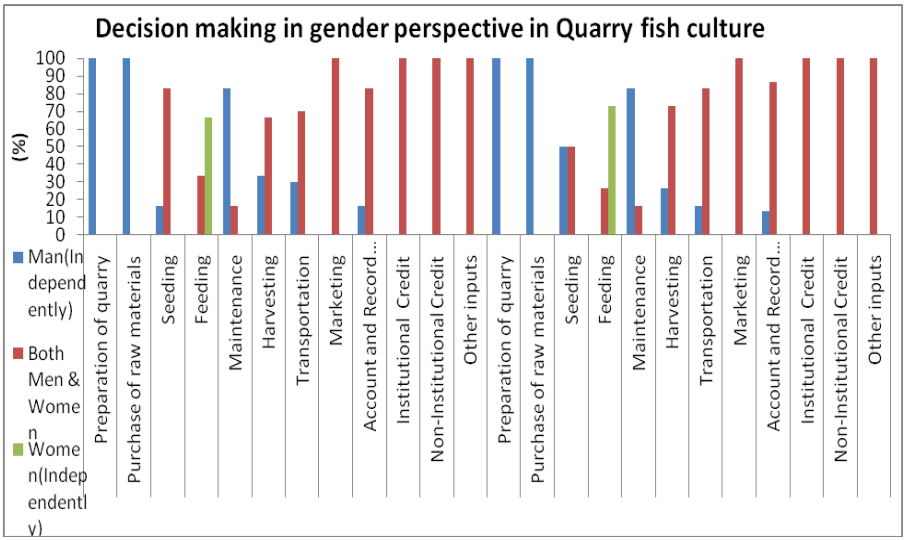
From the above table, it could be noted that, compared to all other activities of quarry fish culture, quarry preparation and seeding were observed as the most important activities by male and female counterparts.

Plate7. 4 SHG members in quarry site

Table 7.5 Decision making in gender perspective in Quarry fish culture

Activity	Man (Independently)		Both Men & Women		Women (Independently)	
	F	M	F	M	F	M
Preparation of quarry	100.00	100.00	0.00	0.00	0.00	0.00
Purchase of raw materials	100.00	100.00	0.00	0.00	0.00	0.00
Seeding	16.67	50.00	83.33	50.00	0.00	0.00
Feeding	0.00	0.00	33.33	26.67	66.67	73.33
Maintenance	83.33	83.33	16.67	16.67	0.00	0.00
Harvesting	33.33	26.67	66.67	73.33	0.00	0.00
Transportation	30.00	16.67	70.00	83.33	0.00	0.00
Marketing	0.00	0.00	100.00	100.00	0.00	0.00
Account and Record keeping	16.67	13.33	83.33	86.67	0.00	0.00
Institutional Credit	0.00	0.00	100.00	100.00	0.00	0.00
Non-Institutional Credit	0.00	0.00	100.00	100.00	0.00	0.00
Other inputs	0.00	0.00	100.00	100.00	0.00	0.00

Figure 7.5



From the decision making profile, (Table 7.5 and Figure 7.5), it is observed that, in most of the activities of quarry fish culture unit, except for the preparation of quarry and purchase of raw materials, men and women take decisions together.

Quarry fish culture in Paniyelil in the initial phase was not a success because of the unexpected hurdles like huge expenditure incurred for draining the water from the quarry which in turn made the B:C ratio much below the expected level. But the Samanwaya SHG members after learning from failure experience, extreme care is being taken for the subsequent trial and is coming up well as per the expectation.

CHAPTER 8

Seafood Kitchen SHGs

Amma Sea Food Kitchen - Poyya

"Talent wins games, but teamwork and intelligence win championships." ***—Michael Jordan***

Poyya is a village situated in Mala Taluk of Thrissur district in the state of Kerala, India. The panchayath office is situated in Pooppathy. The distance from Poyya to Mala is 5 km. A part of Thrissur district ends at Poyya. This Place is in the border of the Thrissur District and Ernakulam District. Ernakulam District Chendamangalam is South towards this place. It is near to Arabian Sea. There is a chance of humidity in the weather and this area is blessed with lush greenery and natural beauty; here tasty food items prepared by 'Amma sea food kitchen' welcome both foreigners and nationals. Under the direction of SAF (Society for Assistance to Fisherwomen) of Kerala Fisheries Department, and Agency for Development in Aquaculture, Kerala (ADAK), this unit established in 2015 in Poyya Neithal Heritage Village and is an exemplary example of women empowerment through mobilized Self Help Group. In this group, SAF implemented a holistic approach which increases confidence and hope among fisherwomen.

This venture made an effective role in uplifting the social status of poor women in Poyya grama panchayat. With the financial assistance of SAF, a small shop was first started by 'Neithal', a group consisting six women and now it became an enterprise which can provide job for nine women. (Figure 8.1). Along with quality, tasty food providing special items such as pearl spot, prawn, crab, anchovies, squid, clam, mackerel are the major specialties of Amma sea food kitchen. A master plan has been submitted to the State Government to develop the model shrimp farm and training Centre at Poyya, near Thirssur, as an aqua tourism spot. The farm is situated near the Muziris Heritage site at Kottapuram in Thrissur.

Figure 8. 1 The Map showing the locale of the study

The master plan for the project includes setting up of a fisheries museum, a demo of fish culture and pokkali farming. The museum will have the demonstration of age-old fishing methods, including fishing crafts and gears. Rearing of prawns, crabs, milkfish and pearl spot in the farm ponds have also been planned. The fish grown in the farm will used to prepare traditional cuisine for tourists visiting the farm and the Muziris heritage site.

Like in Thrissur, SAF has enunciated another sea food kitchen for the visitors in Wayanadu. This step was put forward for the upliftment of Wayandu women folk. This seafood kitchen is situated near the Pookode Lake which is a wonder of nature. This hotel is a success story of 12 women's unity. This sea food kitchen welcomes the visitors with divergent and delicious food items. They serve traditional Wayanadu food items with specially prepared fish items.

The scenic beauty of Wayanadu forest, the exciting voyage through the Pookode Lake and the aquarium with a lot of fresh water ornamental fishes are the amazing experiences, a traveler can derive from the site. The highlight of tourist attraction of seafood kitchen is the fish spa. By paying a nominal cost, the tourists can enjoy this fascinating experience. This is a joint programme of Kerala Fisheries Department and Forest Department.

The Extension part consists of Awareness & ECB Training programmes systematically executed and then extension research part focusing on socio economic surveys with a pre-tested and structured data gathering protocol with standardized scales and indices. Stage by stage video documentation in the various phases of activities of SHG in hotel management was done. In the extent of involvement in various stages of entrepreneurial activity of running the hotel by the members like purchasing materials, food preparation, serving, cleaning, accounts and record keeping etc. were quantified with structured interview schedule. The gender mainstreaming (Daly, 2005) to assess the equity and equality of men and women counterparts of the family were separately interviewed to assess the access to resources, participation profile, decision making aspect and gender need analysis.

For assessing the Performance level of SHGs and Empowerment Index, appropriate scales and indices developed for the project with appropriate modifications were used. The Level of Performance (NABARD,2007 & Shalumol, 2015) was assessed by the checklist containing the same dimensions developed by NABARD such as Group size, Type of members, Number of meetings, Timings of meetings, Attendance of members, Participation of members, Savings collection within the group, Amount to be saved, Interest on internal loan, Utilization of savings amount by SHG, Loan recoveries, Maintenance of books, Accumulated savings, Knowledge of the rules of SHG, Education level, Knowledge of Govt. programs etc arranged in 3 point continuum. Similarly the Empowerment Index was quantified based on 8 dimensions (Meena *et al*, 2012) such as Confidence building, Self-esteem, Decision making pattern, Capacity building, Psychological Empowerment, Social Empowerment, Economic Empowerment and Political Empowerment. The extent of empowerment was quantified as the difference between the scores obtained as per the perception of the SHG members before and after joining the SHG. For computing the Empowerment Index, the scores obtained for each dimensions were first made uniform and that was multiplied by the weightages assigned by the judges while relevancy rating for ascertaining the content validity of the scale through scale product method. Each of the dimension of Empowerment Index was computed by the scores of the sub-dimensions coming under the categories of these 8 dimensions. The Empowerment Index and Level of Performance of SHG

namely Neithal was quantified with the standardized interview schedules. The extent of involvement in various phases of the Entrepreneurial Activity was also quantified and expressed in Table 8.1 and Figure 8.2. Maximum participation of the members and families was observed during Site selection and marketing stages.

Table 8.1 Extent of Involvement in Entrepreneurial Activity

Activity	%
Site selection	75
Extension Service	30
Purchase of raw material	30
Preparation of raw materials	80
Cooking	50
Serving food	70
Cleaning	80
Accounting	20
Institutional Credit	45
Non-Institutional Credit	45
Account and record keeping	50
Other inputs	50

Figure 8.2

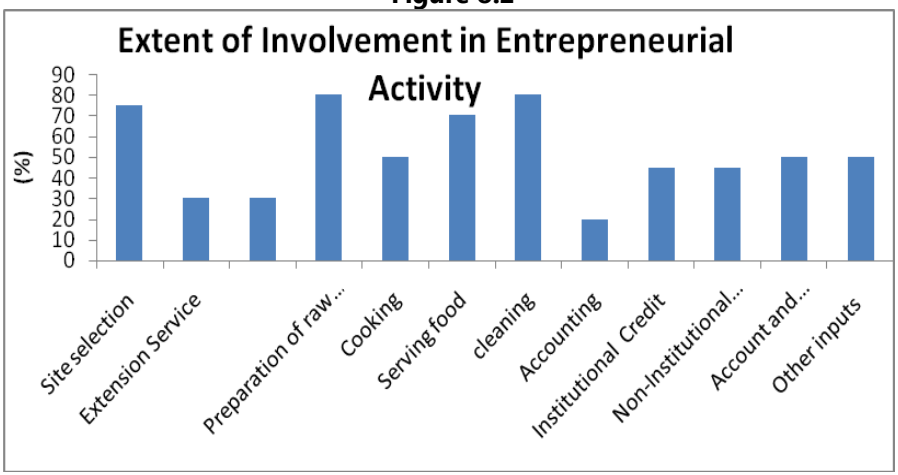


Plate 8.1 SHG members of Amma sea food kitchen in Poyya

An assessment of gender perspectives in terms of gender need and gender role in the running of hotel was also done as a part of the study. All households were selected and male and female counterparts in each household were separately interviewed. The gender participation in different activities, gender needs, decision making and access and control over the resources in respect to hotel running were analyzed. Opinion of men and women in above aspect was found to be similar without any significant difference. However, differential gender response was observed among SHG. Significantly, the accounting/money transaction is under the control of women and the most important requirement perceived by both men and women is cooking. In case of participation and need, both men and women share almost the same opinion. (Sahoo *et al*, 2009, Raghavan, 2009) Socio-economic, technological and export support requirement was analyzed for gender mainstreaming. Male and female respondents in a household were separately interviewed for getting the response of gender needs in terms of access to resources in hotel management, participation in various activities of running a hotel, gender needs and decision making in various stages. The typology access to resources in running a sea food kitchen in gender response such as female alone, male **<**female, male **=** female**,** male **>**female and male is alone indicated separately for male and female respondents

Table 8.2 Access to resources for sea food Unit

Resource Access	Female Alone		M<F		M=F		M>F		Male Alone		No Access	
	F	M	F	M	F	M	F	M	F	M	F	M
Site selection	66.67	50	0	0	33.33	50	0	0	0	0	0	0
Extension Service	100	100	0	0	0	0	0	0	0	0	0	0
Purchase of raw material	50	33.33	0	0	50	66.67	0	0	0	0	0	0
Preparation of raw materials	100	100	0	0	0	0	0	0	0	0	0	0
Cooking	100	100	0	0	0	0	0	0	0	0	0	0
Serving food	100	100	0	0	0	0	0	0	0	0	0	0
cleaning	100	100	0	0	0	0	0	0	0	0	0	0
Accounting	100	100	0	0	0	0	0	0	0	0	0	0
Institutional Credit	100	100	0	0	0	0	0	0	0	0	0	0
Non-Institutional Credit	100	100	0	0	0	0	0	0	0	0	0	0
Account and record keeping	100	100	0	0	0	0	0	0	0	0	0	0
Other inputs	33.33	50	0	0	66.67	50	0	0	0	0	0	0

A perusal of the table 8.2 clearly shows the response of male and female separately in access to resources concerned with running a hotel. Among the responses of female and male for the items of access to resources, most of the items are dominated by 'female alone'.

Similarly the participation profile in various activities concerned with sea food kitchen is presented in a Table 8.3 and figure 8.3. The gender response in participation in various activities in this such as female alone, male **<**female, male **=** female**,** male **>**female and male alone indicated separately by male and female are presented in Table below.

A perusal of the table clearly indicates the participation profile in gender perspective for male and female separately. It can be glanced clearly from the perusal of the table that, most of the activities are female dominating

operations in running the hotel, as per the responses of both male and female. But the Site selection and marketing activities are being performed by both men and women.

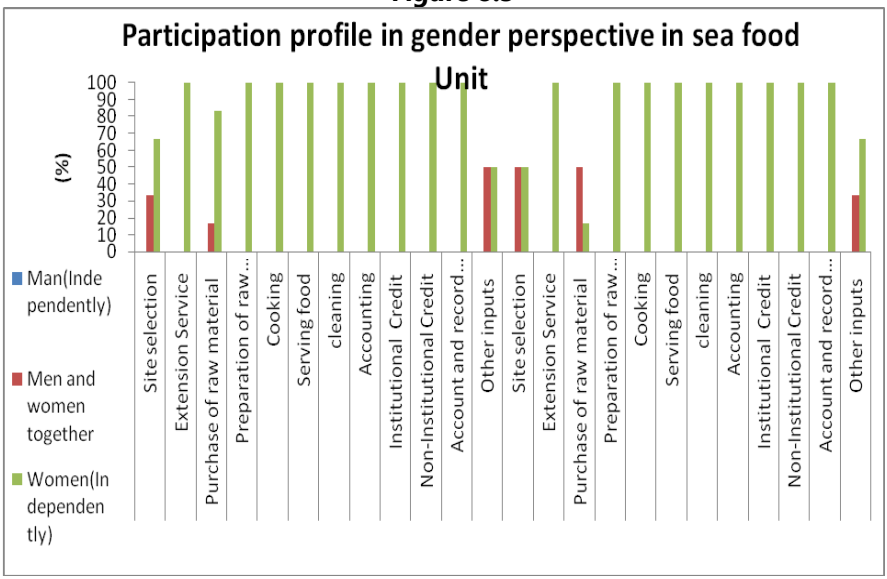
Table 8.3 Participation profile in gender perspective in sea food Unit

Activity	Man (Independently)		Men and women together		Women (Independently)	
	Female	Male	Female	Male	Female	Male
Site selection	0.00	0.00	33.33	50.00	66.67	50.00
Extension Service	0.00	0.00	0.00	0.00	100.00	100.00
Purchase of raw material	0.00	0.00	16.67	50.00	83.33	16.67
Preparation of raw materials	0.00	0.00	0.00	0.00	100.00	100.00
Cooking	0.00	0.00	0.00	0.00	100.00	100.00
Serving food	0.00	0.00	0.00	0.00	100.00	100.00
cleaning	0.00	0.00	0.00	0.00	100.00	100.00
Accounting	0.00	0.00	0.00	0.00	100.00	100.00
Institutional Credit	0.00	0.00	0.00	0.00	100.00	100.00
Non-Institutional Credit	0.00	0.00	0.00	0.00	100.00	100.00
Account and record keeping	0.00	0.00	0.00	0.00	100.00	100.00
Other inputs	0.00	0.00	50.00	33.33	50.00	66.67

A perusal of the table clearly indicates the participation profile in gender perspective for male and female separately. It can be glanced clearly from the perusal of the table that, most of the activities are female dominating operations in running the hotel, as per the responses of both male and female. But the Site selection and marketing activities are being performed by both men and women.

Plate 8.2 SHG members of Amma sea food kitchen in Poyya

Figure 8.3



In the same way, response to the gender needs in various activities concerned with running a cafeteria, male and female separately is presented in below Table 8.4 and Figure 8.4. The gender response in need areas in managing a hotel as per the importance assigned by male and female counterparts are presented in the table.

Table 8.4 Gender needs in activities of sea food Unit

Need Area	Important		More Important		Most Important	
	Female	Male	Female	Male	Female	Male
Site selection	100	100	0	0	0	0
Extension Service	100	100	0	0	0	0
Purchase of raw material	0	0	100	100	0	0
Preparation of raw materials	33.33	50	50	16.67	16.67	33.33
Cooking	0	0	0	0	100	100
Serving food	50	100	50	0	0	0
cleaning	0	0	50	66.67	50	33.33
Accounting	100	100	0	0	0	0
Institutional Credit	100	100	0	0	0	0
Non-Institutional Credit	100	100	0	0	0	0
Account and record keeping	100	100	0	0	0	0
Other inputs	100	100	0	0	0	0

With regard to the gender needs, the most important need area expressed by both male and female counterparts includes cooking and cleaning. Cooking of the food items is the key for the success of the dynamics of the SHG. Proper 'training on technical matters' and 'marketing aspects' is inevitable for desirable results. The decision making in various phases is presented in Table 8.5 and figure 8.5.

Figure 8.4

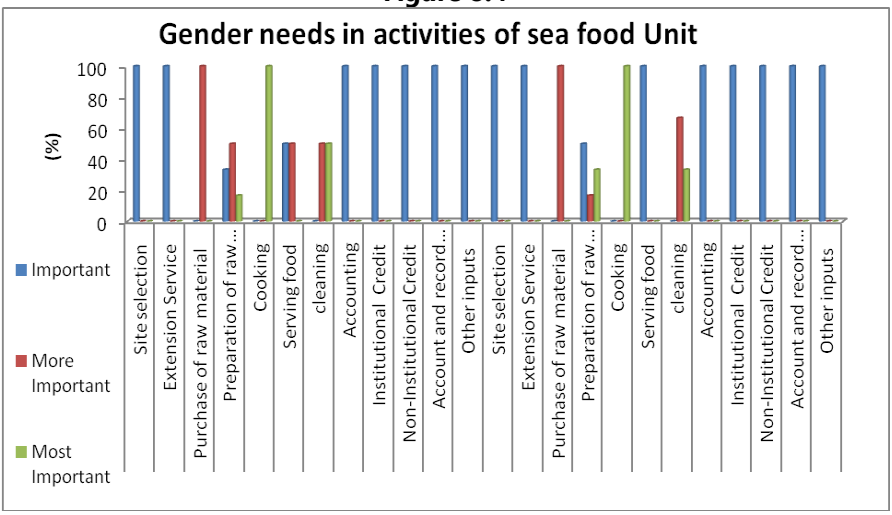


Table 8.5 Decision making in various phases of sea food Unit

Activity	Female Alone		M<F		M=F		M>F		Male Alone	
	F	M	F	M	F	M	F	M	F	M
Site selection	100	100	0	0	0	0	0	0	0	0
Extension Service	100	100	0	0	0	0	0	0	0	0
Purchase of raw material	50	33.33	0	0	50	66.67	0	0	0	0
Preparation of raw materials	100	100	0	0	0	0	0	0	0	0
Cooking	100	100	0	0	0	0	0	0	0	0
Serving food	100	100	0	0	0	0	0	0	0	0
cleaning	100	100	0	0	0	0	0	0	0	0
Accounting	100	100	0	0	0	0	0	0	0	0
Institutional Credit	100	100	0	0	0	0	0	0	0	0
Non-Institutional Credit	100	100	0	0	0	0	0	0	0	0
Account and record keeping	100	100	0	0	0	0	0	0	0	0
Other inputs	33.33	33.33	0	0	66.67	66.67	0	0	0	0

Figure 8.5

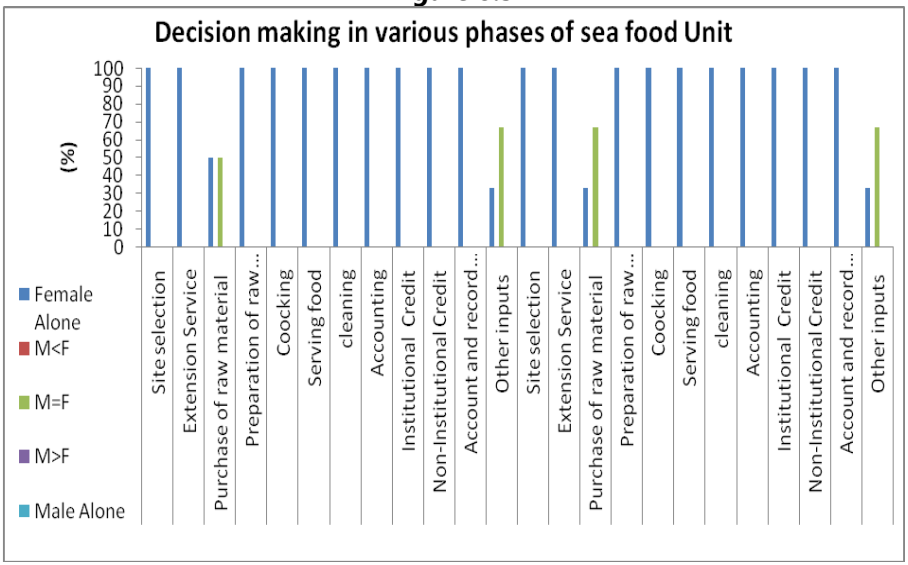


Plate 8.3 SHG members engaged in cooking

Plate 8.4 Value added Products of Amma sea food kitchen SHG

Plate 8.5 SHG leader serving delicious food items to the customers

Table 8.6 Economic Feasibility analysis of Fish Amino SHG units in Elankunnapuzha

Fixed Expenditure	2013		2014		2015		2016	
Items	Units	Value in Rs.	Units	Value in Rs.	Units	Value in Rs.	Units	Value in Rs.
Two burner stove	1	22000						
Cooking Range	2	28000						
Ss work table and rack(5)	1	44000						
Three Sink unit	1	23000						
Refrigerator	1	15500						
Wet grinder	1	21000						
Exhaust Fan	1	6000						
Freezer with glass top	1	17400						
Furniture		90950						
Thermal printer	1	14000						
Utensils and Service wares		98950						
Provision items, Fish, Meat, Vegetables, Milk		750000		775810		911010		944600
Fixed Assets		**380800**						
Variable Expenditure								
Labour charge (Rs.2400 for 300 man days)		720000		720000		720000		720000
LPG		17830		20900		24300		26100
Firewood		23000		22500		23800		23000
Current charge (Rs.3000/month)		36000		36000		36000		36000
Rent (Rs.2500/month)		30000		30000		30000		30000
Transportation		48000		48000		48000		48000
Telephone		12000		14000		14500		14500
Water charge		5000		5000		5000		6100
Packing materials		26000		29600		30400		33200
Office stationary		29000		24000		24000		24000
Miscellaneous		12000		12000		12000		12000
Operating Cost (Rs.)		**1708830**		**1737810**		**1879010**		**1917500**
Interest on fixed cost (10% /annum)		38080		38080		38080		38080
Deprecation (10%/annum)		38080		38080		38080		38080
Total Variable Cost(Rs.)		**1784990**		**1813970**		**1955170**		**1993660**

Return stream

Items	Units	Value in Rs.	Units	Value in Rs.	Units	Value in Rs.	Units	Value in Rs.
Fish curry meals	9000	540000	12000	720000	13500	810000	14150	849000
Sea food	8300	415000	9000	450000	9200	460000	9320	466000
Beef	8100	364500	9000	405000	8950	402750	9160	412200
Chicken	6250	343750	7500	412500	7860	432300	7950	437250
Breakfast Items	7950	238500	10500	315000	10800	324000	10930	327900
Veg/egg curry	7950	238500	10500	315000	10800	324000	10930	327900
Snacks	8300	58100	10500	73500	10980	76860	11250	78750
Hot beverages	7650	61200	9000	72000	9700	77600	9850	78800
Sweets	4900	24500	6000	30000	5400	27000	5200	26000
Cold	4100	49200	4500	54000	5100	61200	5260	63120
Gross Return (Rs.)		**2333250**		**2847000**		**2995710**		**3066920**
Net Returns (Rs.)		**548260**		**1033030**		**1040540**		**1073260**

The Average Operating cost for Amma Sea food was Rs.18,10,788 /- and Average Annual Net Return was found to be Rs.9,23,772/-. The total Fixed Cost was estimated to be Rs 380800/-. The fixed cost was incurred only in the first year. The Break Even Point (BEP) (Fixed cost/ (Price per unit— Variable cost per unit) was estimated to be 34618 (Quantity)

An assessment of sea food kitchen successfully being undertaken by Self Help Group of fisher folk brought out a couple of valid conclusions as, it was understood that the female counterparts also do have a definite role in site selection, purchase of accessories, cooking, serving, cleaning, marketing etc. The Scales of 'Performance Assessment' and 'Empowerment Index' developed for this study have good potential for future use in other key areas on a sustainable basis. Lacunae identified in Empowerment Index computation give adequate feedback to authorities to proceed in the right direction. The gender dimension analysis on mainstreaming aspect gives sensitization on crucial issues like women fisher folk's rights and marketing channels for policies and other interventions on gender. An exhaustive research with larger sample and wider area would be of ample scope. Interrelationships between the variables can act as catalytic points for group action and group empowerment on a sustainable basis. Success case study elucidated can be used as a practical manual for mobilizing SHGs on a sustainable basis.

CHAPTER 9

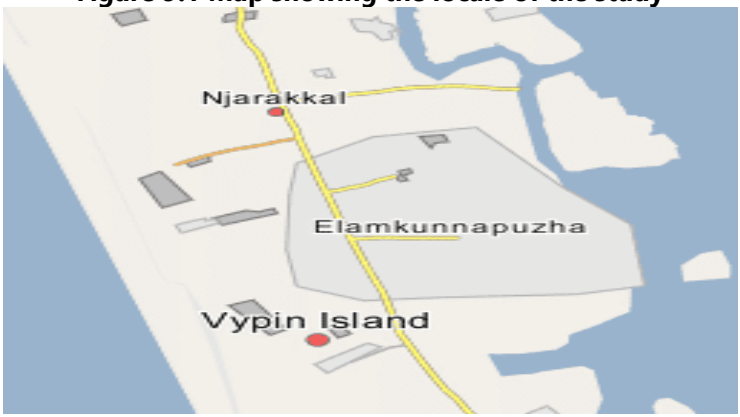
Fish Amino SHGs

Fish Amino SHG Units: A striking success story

*"If everyone is moving forward together, then success take care of itself."—**Henry Ford***

Vypin, which was formed before more than 600 years is a fast developing suburb of Cochin City. Today, all the basic infrastructure of modern living is available in Vypin, which is one of the most densely populated islands in the world. Gosree bridges, LNG, SPN, and IOC etc. enhanced the fast growth of this island. Elankunnapuzha is one of the major Gramapanchayaths in Vypin. Elankunnapuzha Krishi Bhavan has come forward with a new livelihood option for the people in this panchayath by uniting around 25 fisher womenfolk. Krishibhavan led these women to the making of fish amino, which are a biofertiliser as well as a bio pesticide. It can be produced in a reasonable amount using the locally available raw materials. As the first step, 2 groups named Jaiva Haritha Karshaka Sangam with 14 members and Karshakasree Vanitha Karshika Sangam (KVKS) with 12 members have been formed. In this venture Central Marine Fisheries Research Institute (CMFRI) in Kochi studied the equity and the equality of these groups and conducted the SHG interaction meets and fisherfolk training programmes.

Figure 9.1 Map showing the locale of the study



The use of chemical fertilizers and chemical pesticides has led to the pollution and contamination of the soil, destroyed the natural texture of the soil by destructing microorganisms in soil and reduced the soil fertility. So the importance of bio fertilizers and bio pesticides is increasing now a day. Biofertilisers are ecofriendly, which are made from organic matters and biological wastes. They are beneficial to the soil as they enrich the soil with microorganisms that help in producing organic nutrient in the soil. They also restore the depleted nutrients of the soil.

Fish amino acid is an effective organic liquid fertilizer which can be made easily. It is made from mixing the 2 raw materials like sardine, which is a early and plenty available fish which contains high amount of amino acid. Chopped sardine and crushed jiggery are mixed in a ratio of 1:1 proportion. Store the mixture in an air tight plastic jar / bottle for 21 days. Keep the jar in dry place and away from direct sun light. After 15 days, shake the bottle without opening the bottle. After 21 days filter the mixture and remove the residuals. Obtained solution can be used as a bio fertilizer and bio pesticide by adding 40 times of water.

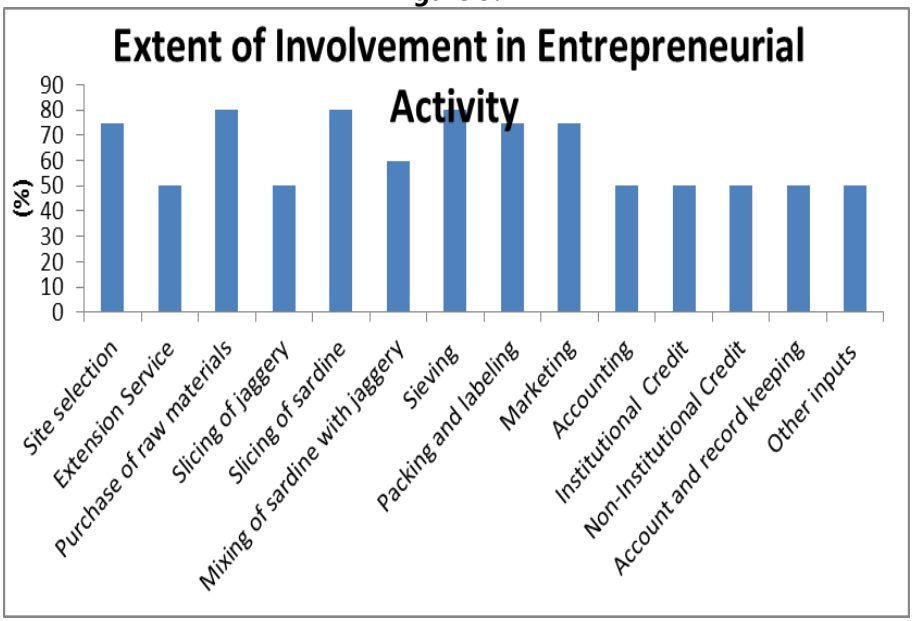
The co-operation, dedication, hard work etc of each SHG members in purchasing of raw materials like sardine and jiggery, slicing of sardine into pieces, crushing of jaggery , mixing of raw materials and making the mixture, filling the bottle with the fertilizer, labeling, marketing etc of fish amino preparation is noticeable. These entrepreneurial activities were quantified with structured interview schedule.

Plate 9.1 Jaiva Haritha SHG members cutting fishes

Table 9.1: Extent of Involvement in Entrepreneurial Activity

Activity	Per cent
Site selection	75
Extension Service	50
Purchase of raw materials	80
Slicing of jiggery	50
Slicing of sardine	80
Mixing of sardine with jiggery	60
Sieving	80
Packing and labeling	75
Marketing	75
Accounting	50
Institutional Credit	50
Non-Institutional Credit	50
Account and record keeping	50
Other inputs	50

Figure 9.2



The extent of involvement in various phases of the Entrepreneurial Activity was also quantified and expressed in table 9.1 and figure 9.2. Maximum participation of the members and families was observed during purchase/collection of fish and jaggery and cutting of sardine into small pieces stages.

Plate 9.2 Vanitha Karshika Sangam SHG members cutting fishes

An assessment of gender perspectives in terms of gender need and gender role in fish amino production was also done as a part of the study. All households were selected and male and female counterparts in each household were separately interviewed. The gender participation in different activities, gender needs, decision making and access and control over the resources in respect to fish amino production were analyzed. Opinion of men and women in above aspect was found to be similar without any significant difference. However, differential gender response was observed among SHGs. Significantly, the accounting/money transaction is under the control of women. In case of participation and need, both men and women share almost the same opinion. (Sahoo *et al*, 2009, Raghavan, 2009) Socio-economic, technological and export support requirement was analyzed for gender mainstreaming. Male and female respondents in a household were separately interviewed for getting the response of gender needs in terms of

access to resources in fish amino production, participation in various activities, gender needs and decision making in various stages. The typology access to resources in fish amino production in gender response such as female alone, male **<** female, male **=** female**,** male **>** female and male is alone indicated separately for male and female respondents (Table 9. 2)

Table 9.2: Access to Resources for fish amino unit

Resource Access	Female Alone		M<F		M=F		M>F		Male Alone		No Access	
	F	M	F	M	F	M	F	M	F	M	F	M
Site selection	100	100	0	0	0	0	0	0	0	0	0	0
Extension Service	100	100	0	0	0	0	0	0	0	0	0	0
Purchase of raw materials	50	60	0	0	50	40	0	0	0	0	0	0
Slicing of jaggery	100	100	0	0	0	0	0	0	0	0	0	0
Slicing of sardine	100	100	0	0	0	0	0	0	0	0	0	0
Mixing of sardine with jaggery	100	100	0	0	0	0	0	0	0	0	0	0
Sieving	100	100	0	0	0	0	0	0	0	0	0	0
Packing and labeling	100	100	0	0	0	0	0	0	0	0	0	0
Marketing	75	65	0	0	25	35	0	0	0	0	0	0
Accounting	100	100	0	0	0	0	0	0	0	0	0	0
Institutional Credit	100	100	0	0	0	0	0	0	0	0	0	0
Non-Institutional Credit	100	100	0	0	0	0	0	0	0	0	0	0
Account and record keeping	100	100	0	0	0	0	0	0	0	0	0	0
Other inputs	100	100	0	0	0	0	0	0	0	0	0	0

A perusal of the table 9.2 clearly shows the response of male and female separately in access to resources concerned with fish amino production. Among the responses of female and male for the items of access to resources, most of the items are dominated by 'female alone'.

Plate 9.3 SHG members with fish amino acid

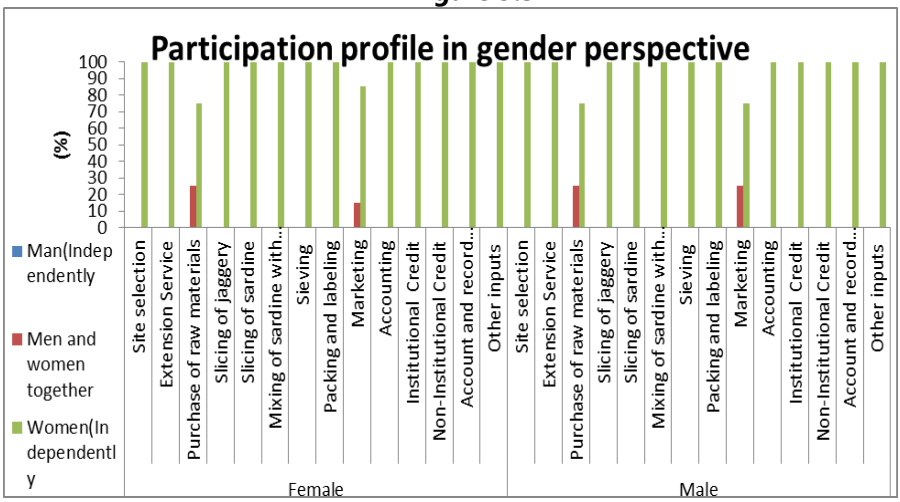
Plate 9.4 SHG members slicing the Jaggery

Similarly the participation profile in various activities concerned with fish amino production is presented in Table 9.3 and figure 9.3. The gender response in participation in various activities in fish amino production in such as female alone, male **<** female, male **=** female**,** male **>** female and male alone indicated separately by male and female are presented in Table 9.3.

Table 9. 3: Participation profile in gender perspective

	Man (Independently)		Men and women together		Women (Independently)	
Activity	Female	Male	Female	Male	Female	Male
Site selection	0.00	0.00	0.00	0.00	100.00	100.00
Extension Service	0.00	0.00	0.00	0.00	100.00	100.00
Purchase of raw materials	0.00	0.00	25.00	25.00	75.00	75.00
Slicing of jaggery	0.00	0.00	0.00	0.00	100.00	100.00
Slicing of sardine	0.00	0.00	0.00	0.00	100.00	100.00
Mixing of sardine with jaggery	0.00	0.00	0.00	0.00	100.00	100.00
Sieving	0.00	0.00	0.00	0.00	100.00	100.00
Packing and labeling	0.00	0.00	0.00	0.00	100.00	100.00
Marketing	0.00	0.00	15.00	25.00	85.00	75.00
Accounting	0.00	0.00	0.00	0.00	100.00	100.00
Institutional Credit	0.00	0.00	0.00	0.00	100.00	100.00
Non-Institutional Credit	0.00	0.00	0.00	0.00	100.00	100.00
Account and record keeping	0.00	0.00	0.00	0.00	100.00	100.00
Other inputs	0.00	0.00	0.00	0.00	100.00	100.00

Figure 9.3



A perusal of the table 9.3 clearly indicates the participation profile in gender perspective in fish amino production for male and female separately. It can be glanced clearly from the perusal of the table that, most of the activities are female dominating operations, as per the responses of both male and female. But the transportation and purchase activities are being performed by both men and women.

Plate 9.5: Farmer interaction meet organized by CMFRI for Fish Amino SHG

In the same way, response to the gender needs in various activities concerned with fish amino production of male and female separately is presented in Table 9.4 and figure 9.4. The gender response in need areas as per the importance assigned by male and female counterparts are presented in the table.

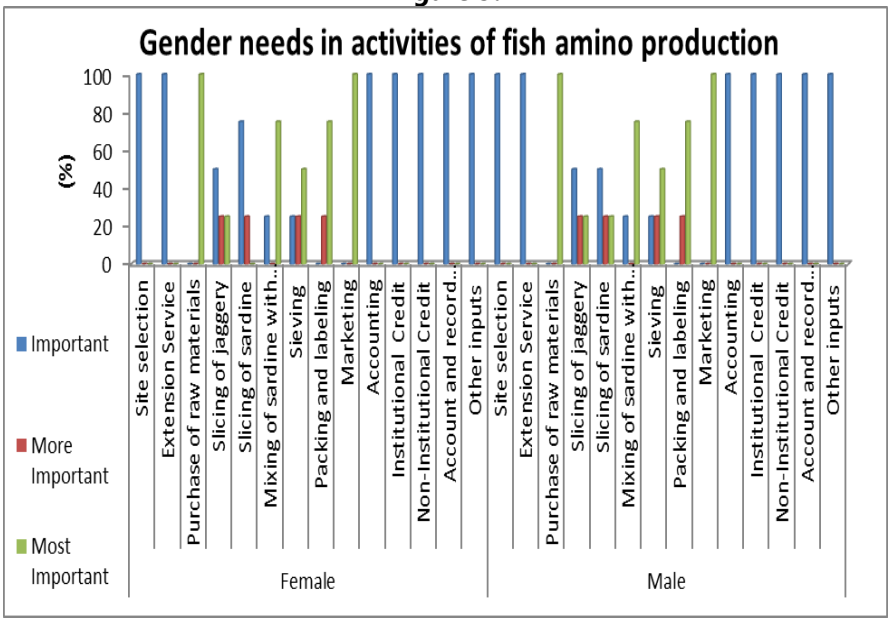
Plate 9.6 SHG members engaged in mixing up of jaggery for fish amino production

Plate 9.7 Vanitha Karshika Sangam SHG members mixing fish and jagerry

Table 9.4: Gender needs in activities of fish amino production

Need Area	Important		More Important		Most Important	
	F	M	F	M	F	M
Site selection	100	100	0	0	0	0
Extension Service	100	100	0	0	0	0
Purchase of raw materials	0	0	0	0	100	100
Slicing of jaggery	50	50	25	25	25	25
Slicing of sardine	75	50	25	25	0	25
Mixing of sardine with jaggery	25	25	0	0	75	75
Sieving	25	25	25	25	50	50
Packing and labeling	0	0	25	25	75	75
Marketing	0	0	0	0	100	100
Accounting	100	100	0	0	0	0
Institutional Credit	100	100	0	0	0	0
Non-Institutional Credit	100	100	0	0	0	0
Account and record keeping	100	100	0	0	0	0
Other inputs	100	100	0	0	0	0

Figure 9.4



With regard to the gender needs, the most important need area expressed by both male and female counterparts includes raw material collection and marketing. Marketing of the products is the key for the success of the dynamics of these SHGs. Proper 'training on technical matters' and 'marketing aspects' is inevitable for desirable results.

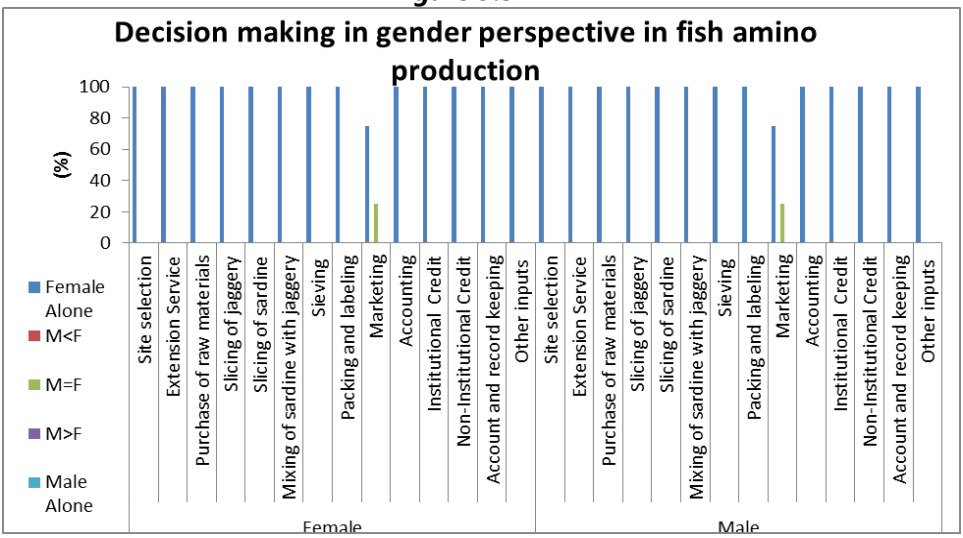
Similarly, the extent of decision making in various activities concerned with fish amino production as per the response of male and female separately is presented in Table 9.5 and figure 9.5. Decision making aspect of fishermen is of paramount significance with regard to marine fisheries sector in the Indian context (Srinath, 1990). The gender response in decision making in various activities is such as female alone, male **<** female, male **=** female**,** male **>** female and male alone indicated separately by male and female are presented in Table 9.5.

Table 9. 5: Decision making in gender perspective in fish amino production

Activity	Female Alone		M<F		M=F		M>F		Male Alone	
	F	M	F	M	F	M	F	M	F	M
Site selection	100	100	0	0	0	0	0	0	0	0
Extension Service	100	100	0	0	0	0	0	0	0	0
Purchase of raw materials	100	100	0	0	0	0	0	0	0	0
Slicing of jaggery	100	100	0	0	0	0	0	0	0	0
Slicing of sardine	100	100	0	0	0	0	0	0	0	0
Mixing of sardine with jaggery	100	100	0	0	0	0	0	0	0	0
Sieving	100	100	0	0	0	0	0	0	0	0
Packing and labeling	100	100	0	0	0	0	0	0	0	0
Marketing	75	75	0	0	25	25	0	0	0	0
Accounting	100	100	0	0	0	0	0	0	0	0
Institutional Credit	100	100	0	0	0	0	0	0	0	0
Non-Institutional Credit	100	100	0	0	0	0	0	0	0	0
Account and record keeping	100	100	0	0	0	0	0	0	0	0
Other inputs	100	100	0	0	0	0	0	0	0	0

Plate 9.8 SHG leader squeezing out the fish amino extract.

Figure 9.5



It is interesting to note that, the decision making aspect on the various phases being accomplished by 'female alone' in most of the activities as per the response of male and female without much difference.

Plate 9.9 SHG members filling fish amino extract into various containers

Table 9.6 Economic Feasibility analysis of Fish Amino SHG units in Elankunnapuzha

Sl. No.	Fixed Expenditure	2014		2015		2016	
	Items	Units	Value in Rs.	Units	Value in Rs.	Units	Value in Rs.
1	Large plastic bucket	2	900				
2	Muslin cloth(in meters)	3	135				
3	Plastic trays	2	250				
4	Knife	5	250				
5	scissors	3	300				
6	Furniture		2500				
	Variable Cost (Rs.)		**4335**				
1	Raw Fish (Quantity in Kg, Value in Rs.)	100	5400	100	4140	100	3560
2	Jaggery (Quantity in Kg, Value in Rs.)	100	4780	100	4320	100	3900
3	Plastic bottles (200 ml)(in numbers)	450	1800	450	1575	425	1488
4	Plastic bottles (100 ml) (in numbers)	660	1650	600	1500	600	1500
5	Labelling (Sheets)		1050		1050		1040
6	Labour(Rs.750 for 15 Mandays)		11250		11250		11250
7	Transportation		500		500		500
8	Miscellaneous		200		150		150
	Recreation Cost		**26630**		**24485**		**23388**
9	Interest on fixed cost (10% /annum)		434		434		434
	Deprecation (10% /annum)		434		434		434
10	**Total Variable Cost (Rs.)**		**27498**		**25353**		**24256**

Return stream

	Items	Units	Value in Rs.	Units	Value in Rs.	Units	Value in Rs.
1	Fish Amino 200 ml (Rs 50/- bottle)	450	22500	448	22400	423	21150
2	Fish Amino 100 ml (Rs 25/- bottle)	560	14000	572	14300	585	14625
	Gross Return		**36500**		**36700**		**35775**
	Net Returns		**9002**		**11347**		**11519**

The Average Operating cost for the venture on Fish amino by SHGs was Rs.25, 702/- and Average Annual Net Return was found to be Rs.10,622/-. The total Fixed Cost was estimated to be Rs 4335/-. The fixed cost was incurred only in the first year. The main components of the Fixed Cost involved were utensils, large plastic containers, muslin clothes, trays, knife, scissors and furniture. Among the variable cost components, raw fish and jaggery contributed the most. SHGs collect raw fish and jaggery at an average price of Rs 44 each per kg and other recurring expenditure was made on Plastic bottles, rent, and wages and so on. These products were available in two quantities (100ml and 200 ml). The Break Even Point (BEP) (Fixed cost/(Price per unit—Variable cost per unit) was estimated to be 361(Quantity) of processed fish amino acid. The economic feasibility analysis of the SHGs suggests that, the unit takes just one year to break even.

CHAPTER 10

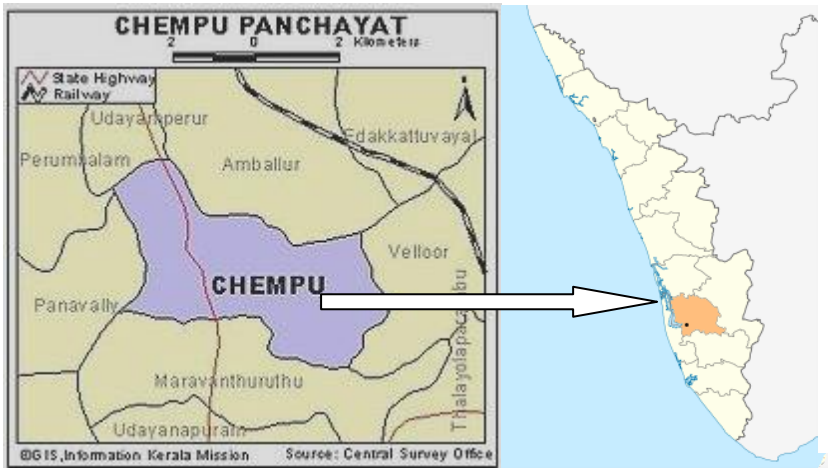
Clam Processing SHGs

Impact of SHGs in Gender Mainstreaming: A case study on Clam Processing unit - Pookkaitha

*"Alone we can do so little, together we can do so much-**Helen Keller**"*

Pookaitha is a conspicuous island with lush greenery and beautiful river banks in Kottayam district situating in the border of Alappuzha. There are 42 families residing in this exquisitely pretty island. The difficulties encountered in water as the only means of transportation and a very poor socio economic status of the inhabitants of the village made them displaced from the mainstream development activities for quite a long time in the earlier phases. The major means of livelihood of the village were agriculture and fishing. (Figure 10.1)

Figure 10.1 Map showing the locale of the study



The Kerala State Department of Fisheries under Society for Assistance to Fisherwomen (SAF) came forward to mobilize Self Help Groups in Clam Processing and brought out a couple of development initiatives in the fisheries sector. Two SHGs named as Samudra and Pavizham were mobilized under *Theeramythri* project of SAF with technical training in Clam Processing. The income generated out of this entrepreneurial venture has become one of the major means of livelihood reflected in 8 families of the members of these SHGs. An assessment on the participation profile in various activities like clam collection, purchase of accessories, meat shucking by boiling in water, separation of meat and shell, cleaning, weighing, marketing, arrangement of institutional and non-institutional credit, account and record keeping etc. has shown the extreme commitment and integrity with co-ordination talents meticulously executed by the women SHGs.

With the wholehearted assistance SAF, the Central Marine Fisheries research Institute (CMFRI) visited the Pookaitha location a couple of times and conducted interaction programme for the fisher folk on Clam processing and Clam culture. With the co-operation of Pookaitha island of Chembu gramapanchayath and with the involvement of Marine fisheries scientists of CMFRI, a massive awareness programme and a farmer interaction meet were organized for these SHGs. CMFRI also made a study on gender mainstreaming and impact of this Self Help Group and assessed the equity and equality of men and women in these SHGs. The participation profile, decision making, gender need analysis etc. also were undertaken by interviewing the men and women counterparts of these SHGs.

The obstacles and hurdles being encountered by these SHGs, their poverty level, difficulties in transport, etc. were assessed with the plausibility of clam cultivation potential in the water bodies of Pookaitha undertaken by the scientists of Molluscan Fisheries division of CMFRI. In this expedition, the major aim and methodology employed from CMFRI essentially consists of extension research. The major objectives were to organize awareness and training programmes of Entrepreneurial Capacity Building (ECB) in Clam processing technology, to undertake Gender analysis of the members of SHGs of clam processing in Pookaitha, to assess the Performance level of

SHGs and Empowerment Index through appropriate scales and indices, to undertake the economic feasibility analysis of clam and to elucidate the success case study of clam processing SHGs in Pookaitha

The Extension part consists of Awareness & ECB Training programmes systematically executed and then extension research part focusing on socio economic surveys with a pre-tested and structured data gathering protocol with standardized scales and indices. Massive awareness programmes and farmer interaction meets were organized in Pookaitha of Vaikom site with the involvement of scientists from MFD division of CMFRI. Training programmes on clam collection, meat shucking by boiling in water, separation of meat and shell, cleaning, were also undertaken systematically with the involvement of fisher folk members of SHGs. Stage by stage Video documentation in the various phases of activities of SHGs in Clam processing were documented.

Plate 10.1 Samudra and Pavizham SHG engaged in clam sorting

In the extent of involvement in various stages of entrepreneurial activity of clam culture by the members like clam collection, purchase of accessories, meat shucking by boiling in water, separation of meat and shell, cleaning, weighing, marketing, arrangement of institutional and non-institutional

credit, account and record keeping etc. Ware quantified with structured interview schedule. The gender mainstreaming (Daly, 2005) to assess the equity and equality of men and women counterparts of the family were separately interviewed to assess the access to resources, participation profile, decision making aspect and gender need analysis.

For assessing the Performance level of SHGs and Empowerment Index, appropriate scales and indices were developed. The Level of Performance (NABARD,2007 & Shalumol, 2015) was assessed by the checklist containing the same 16 dimensions developed by NABARD such as Group size, Type of members, Number of meetings, Timings of meetings, Attendance of members, Participation of members, Savings collection within the group, Amount to be saved, Interest on internal loan, Utilization of savings amount by SHG, Loan recoveries, Maintenance of books, Accumulated savings, Knowledge of the rules of SHG, Education level, Knowledge of Govt. programs etc arranged in 3 point continuum. Similarly the Empowerment Index was quantified based on 8 dimensions (Meena *et al*, 2012) such as Confidence building, Self-esteem, Decision making pattern, Capacity building, Psychological Empowerment, Social Empowerment, Economic Empowerment and Political Empowerment. The extent of empowerment was quantified as the difference between the scores obtained as per the perception of the SHG members before and after joining the SHG.

The extent of involvement in various phases of the Entrepreneurial Activity was also quantified and expressed in Table 10.1 and Figure 10.2. Maximum participation of the members and families was observed during Site selection and marketing stages.

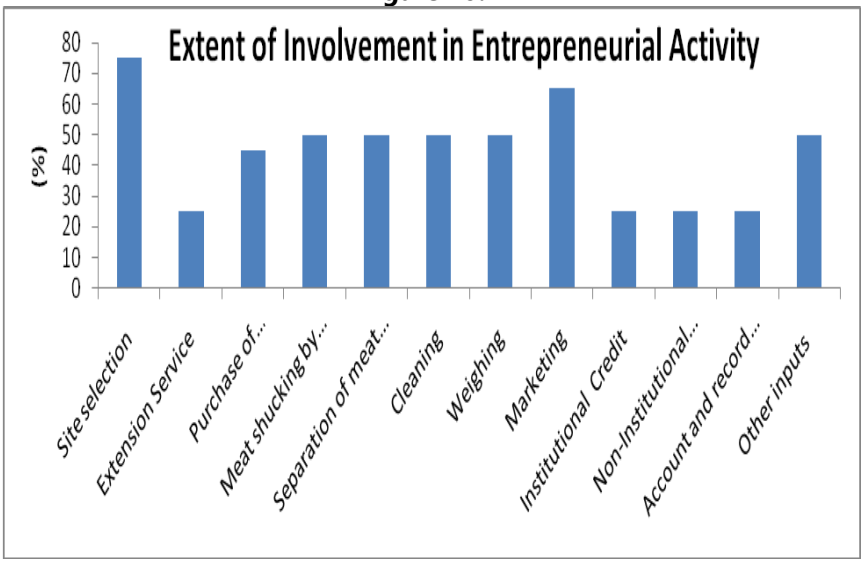
The Empowerment Index and Level of Performance of 2 SHGs namely Samudra and Pavizham were quantified with the standardized interview schedules. An assessment of gender perspectives in terms of gender need and gender role in clam processing in Pookaitha was also done as a part of the study. All households were selected and male and female counterparts in each household were separately interviewed.

Table 10.1: Extent of Involvement in Entrepreneurial Activity

Activity	Per cent
Site selection	75
Extension Service	25
Purchase of accessories	45
Meat shucking by boiling in water	50
Separation of meat and shell	50
Cleaning	50
Weighing	50
Marketing	65
Institutional Credit	25
Non-Institutional Credit	25
Account and record keeping	25
Other inputs	50

Plate 10.2 SHG members in clam boiling operation

Figure 10.2



The gender participation in different activities, gender needs, decision making and access and control over the resources in respect to Clam processing were analyzed. Opinion of men and women in above aspect was found to be similar without any significant difference. However, differential gender response was observed among SHGs.

Significantly, the accounting/money transaction is under the control of women and the most important requirement perceived by both men and women is the timely availability of Clam. In case of participation and need, both men and women share almost the same opinion. (Sahoo *et al*, 2009, Raghavan, 2009) Socio-economic, technological and export support requirement was analyzed for gender mainstreaming. Male and female respondents in a household were separately interviewed for getting the response of gender needs in terms of access to resources in clam processing, participation in various activities of farming, gender needs and decision making in various stages

Plate 10.3 Samudra and Pavizham SHG members in clam processing

Significantly, the accounting/money transaction is under the control of women and the most important requirement perceived by both men and women is the timely availability of Clam. In case of participation and need, both men and women share almost the same opinion. (Sahoo *et al*, 2009, Raghavan, 2009) Socio-economic, technological and export support requirement was analyzed for gender mainstreaming. Male and female respondents in a household were separately interviewed for getting the response of gender needs in terms of access to resources in clam processing, participation in various activities of farming, gender needs and decision making in various stages. The typology access to resources in bivalve farming in gender response such as female alone, male **<**female, male **=** female**,** male **>**female and male is alone indicated separately for male and female respondents (Table 10.2)

Table 10.2 Access to resources for clam processing unit

Resource Access	Female Alone		M<F		M=F		M>F		Male Alone		No Access	
	F	M	F	M	F	M	F	M	F	M	F	M
Site selection	100	100	0	0	0	0	0	0	0	0	0	0
Extension Service	100	100	0	0	0	0	0	0	0	0	0	0
Purchase of accessories	75	50	0	0	25	50	0	0	0	0	0	0
Purchase of clam	75	100	0	0	0	0	25	0	0	0	0	0
Meat shucking by boiling in water	100	100	0	0	0	0	0	0	0	0	0	0
Separation of meat and shell	100	100	0	0	0	0	0	0	0	0	0	0
Cleaning	100	100	0	0	0	0	0	0	0	0	0	0
Weighing	100	100	0	0	0	0	0	0	0	0	0	0
Marketing	50	25	0	0	50	75	0	0	0	0	0	0
Institutional Credit	100	100	0	0	0	0	0	0	0	0	0	0
Non-Institutional Credit	100	100	0	0	0	0	0	0	0	0	0	0
Account and record keeping	100	100	0	0	0	0	0	0	0	0	0	0
Other inputs	75	50	0	0	25	50	0	0	0	0	0	0

A perusal of the table 10.2 clearly shows the response of male and female separately in access to resources concerned with clam processing. Among the responses of female and male for the items of access to resources, most of the items are dominated by 'female alone'.

Similarly the participation profile in various activities concerned with clam processing is presented in Table 10.3. The gender response in participation in various activities in clam processing in such as female alone, male **<**female, male **=** female**,** male **>**female and male alone indicated separately by male and female are presented in Table 10.3 and Figure 10.3.

Table 10.3: Participation profile in gender perspective in clam processing unit

Activity	Man (Independently)		Men and Women together		Women (Independently)	
	Female	Male	Female	Male	Female	Male
Site selection	0	0	50	50	50	50
Extension Service	0	0	0	0	100	100
Purchase of accessories	0	0	25	25	75	75
Purchase of clam	0	0	0	0	100	100
Meat shucking by boiling in water	0	0	0	0	100	100
Separation of meat and shell	0	0	0	0	100	100
Cleaning	0	0	0	0	100	100
Weighing	0	0	0	0	100	100
Marketing	0	0	50	25	50	75
Institutional Credit	0	0	0	0	100	100
Non-Institutional Credit	0	0	0	0	100	100
Account and record keeping	0	0	0	0	100	100
Other inputs	0	0	75	25	25	75

A perusal of the figure 10.2 clearly indicates the participation profile in gender perspective in clam processing for male and female separately. It can be glanced clearly from the perusal of the table that, most of the activities are female dominating operations in clam processing, as per the responses of both male and female. But the Site selection and marketing activities are being performed by both men and women.

Figure 10.3

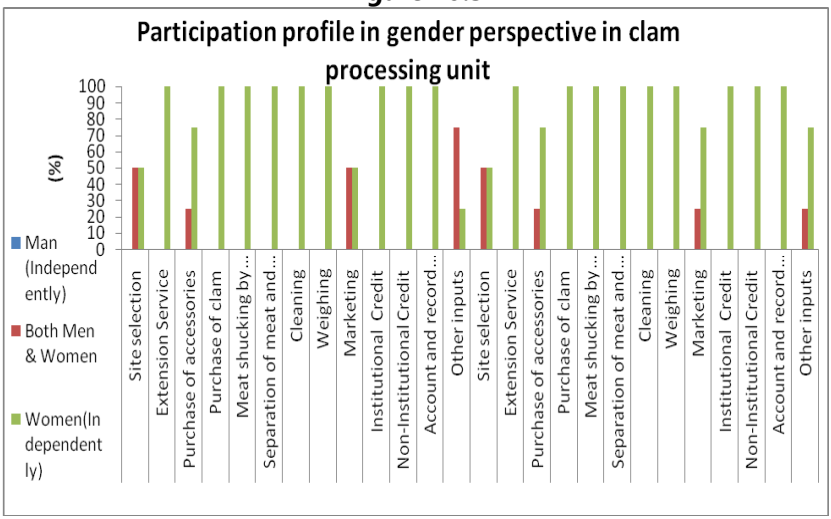


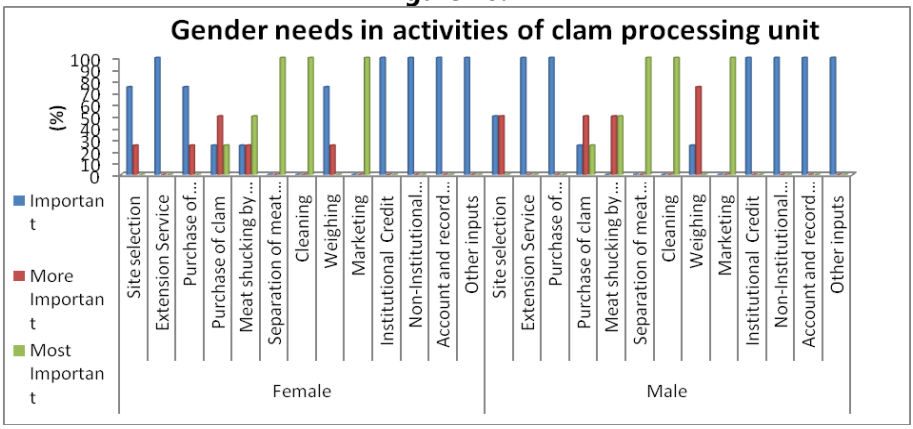
Plate 10.4 clam processing operation

In the same way, response to the gender needs in various activities concerned with clam processing of male and female separately is presented in Table 10.4 and Figure 10.4. The gender response in need areas in clam processing as per the importance assigned by male and female counterparts are presented in the table and figure.

Table 10.4: Gender needs in activities of clam processing unit

Need Area	Important		More Important		Most Important	
	Female	Male	Female	Male	Female	Male
Site selection	75.00	50.00	25.00	50.00	0.00	0.00
Extension Service	100.00	100.00	0.00	0.00	0.00	0.00
Purchase of accessories	75.00	100.00	25.00	0.00	0.00	0.00
Purchase of clam	25.00	25.00	50.00	50.00	25.00	25.00
Meat shucking by boiling in water	25.00	0.00	25.00	50.00	50.00	50.00
Separation of meat and shell	0.00	0.00	0.00	0.00	100.00	100.00
Cleaning	0.00	0.00	0.00	0.00	100.00	100.00
Weighing	75.00	25.00	25.00	75.00	0.00	0.00
Marketing	0.00	0.00	0.00	0.00	100.00	100.00
Institutional Credit	100.00	100.00	0.00	0.00	0.00	0.00
Non-Institutional Credit	100.00	100.00	0.00	0.00	0.00	0.00
Account and record keeping	100.00	100.00	0.00	0.00	0.00	0.00
Other inputs	100.00	100.00	0.00	0.00	0.00	0.00

Figure 10.4



With regard to the gender needs, the most important need area expressed by both male and female counterparts includes Separation of meat and shell, Cleaning and Marketing. Marketing of the products is the key for the success of the dynamics of these SHGs. Proper 'training on technical matters' and 'marketing aspects' is inevitable for desirable results. Similarly the decision making aspect was computed and presented in Table 10.5.

Table 10.5 Decision making in various phases of clam processing unit

Decision making in Activity Name	Female Alone		M<F		M=F		M>F		Male Alone	
	F	M	F	M	F	M	F	M	F	M
Site selection	75	50	0	0	25	50	0	0	0	0
Extension Service	50	100	0	0	50	0	0	0	0	0
Purchase of accessories	100	100	0	0	0	0	0	0	0	0
Purchase of clam	100	100	0	0	0	0	0	0	0	0
Meat shucking by boiling in water	100	100	0	0	0	0	0	0	0	0
Separation of meat and shell	100	100	0	0	0	0	0	0	0	0
Cleaning	100	100	0	0	0	0	0	0	0	0
Weighing	100	100	0	0	0	0	0	0	0	0
Marketing	50	50	0	0	50	50	0	0	0	0
Institutional Credit	100	100	0	0	0	0	0	0	0	0
Non-Institutional Credit	100	100	0	0	0	0	0	0	0	0
Account and record keeping	100	100	0	0	0	0	0	0	0	0
Other inputs	50	50	0	0	50	50	0	0	0	0

Plate 10.5 Training programme in Pookaitha

The Economic Feasibility analysis of Clam Processing SHG units in Pookaitha representing the indicative economics is presented in Table 10.6.

Table 10.6 Economic Feasibility analysis of Clam Processing SHG units in Pookaitha

Fixed Assets	**2013**		**2014**		**2015**		**2016**	
Items	**Units**	**Value in Rs.**	**Units**	**Value in Rs..**	**Units**	**Value in Rs.**	**Units**	**Value in Rs.**
Stove	1	5,000						
Weighing Balance	1	5,000						
Clamsorter sieve	1	6,000						
Utensils	8	15,370						
Furniture	7	5,650						
Miscellaneous		3,000						
Fixed cost								**40,020**
Variable Assets	**Units**	**Value in Rs.**	**Units**	**Value in Rs.**	**Units**	**Value in Rs.**	**Units**	**Value in Rs.**
Raw Clams (Kg/Rs)	37,062	65,365	29,290	53,765	36,500	65,700	36,905	66,430
Firewood (Kg/Rs)	2,400	12,000	2,500	12,500	2,429	12,100	2230	11,650
Ice (Kg/Rs)	4,050	8,100	2,880	5,760	3,120	6,240	3240	6,480
Rent (1000 /Month)		12,000		12,000		12,000		12,000
Wages(Rs.600/ 225Mandays)		1,35,000		1,35,000		1,35,000		1,35,000
Transportation		3,000		2,500		1,800		1,500
Miscellaneous		2,000		1,500		1,500		1,800
Variable Cost		2,37,465		2,23,025		2,34,340		2,34,860
Interest on fixed cost(10%/annum)		4002		4002		4002		4002
Deprecation (10% /annum)		4002		4002		4002		4002
Total Operati-onal Cost		2,45,469		2,31,029		2,42,344		2,42,864

Return Stream								
Items	**Units**	**Price in Rs.**	**Units**	**Price in Rs.**	**Units**	**Price in Rs.**	**Units**	**Price in Rs.**
Main Product (Kg/Rs)	2,449	2,44,900	2,046	2,04,680	2,484	2,65,788	2,527	2,83,024
By Product (Kg/Rs)	25,476	66,238	21,780	56,628	23,458	60,990	23,546	61,219
Gross Return		**3,11,138**		**2,61,308**		**3,26,778**		**3,44,243**
Net Return		65,669		30,279		84,434		1,01,379

The Economic Feasibility analysis of Clam Processing SHG units representing the indicative economics shows that the Average Operating cost for the venture on Clam processing by SHGs was Rs.2, 32,422/- and Average Annual Net Return was found to be Rs.70,440/-. The total Fixed Cost was estimated to be Rs 40,020/-. The fixed cost was incurred only in the first year. Among the variable cost components, raw clams contributed the most. Out of the total estimated variable cost, about 25 per cent was contributed by raw clams. SHGs collect raw clams from agents at an average price of Rs 2 per kg and other recurring expenditure was made on firewood, ice, rent, and wages and so on. There were two products from the units. The major one was the shucked meat which commanded an average price of Rs 2.5 lakhs from an average of 2,127 kg per year and the by-product was shell which commanded an average price of Rs 61,300/- from an average of 21,065 kg per year. The Break Even Point (BEP) (Fixed cost/ (Price per unit—Variable cost per unit) was estimated to be 8,004 kg of processed clam meat. The economic feasibility analysis of the SHGs suggests that, the unit takes two years to break even.

CHAPTER 11

Social Entrepreneurship SHGs

Saga on Social Entrepreneurship – A pioneering SHG venture through Fish Aggregating Devices

"*Every for profit business can have a social business "*-***Muhammad Yunus***

Alappuzha is an important tourist destination in India. The Backwaters of Alappuzha are the most popular tourist attraction in Kerala. Mannancherry is a village in Alappuzha district. It is situated about 10 km north of Alappuzha town. Mannanchery is blessed with its scenic beauty. The major occupation of the people of this village has been coir making and fishing for the last few decades. The Vembanad Lake forms the eastern boundary of this village. Vembanadu Lake is the longest water body in the country and largest in the state. The wetland has an area of 1521.5 km^2 and volume of 0.55 km^3, fed by 10 rivers flowing into it, adding up to a total drainage area of 15,770 sq km. It is a complex aquatic system of 96 km. long coastal backwaters, lagoons, marshes, mangroves and reclaimed lands, with intricate networks of natural channels and man-made canals.

The wetland was included in the list of wetlands of international importance, as defined by the Ramsar Convention for the conservation and sustainable utilization of wetlands in 2002. The fish, reptile and the molluscs found in the lake are facing a threat to their existence. Reduced lake area, construction of Thannermukkom barrage, coconut husk retting, uncontrolled mining of black clams, sewage effluents, chemicals from paddy fields etc., had created a number of water quality problems such as reduction of flushing action in the lake and there by cause a proliferation growth of weeds and water hyacinth in the lake. Several NGOs like Kerala River Conservation Council, the Kuttand Foundation etc are approaching the government for implementing an integrated management-action-plan for this wetland.

Asoka Trust for Research in Ecology and the Environment (ATREE), initiated Vembanad Wetland Conservation Program, to help conserve the wetland.

ATREE along with the Regional Agricultural Research Station (RARS), conducted a participatory fish census in 2008, titled the 'Vembanad Fish Count 2008', to prepare inventory of fish biodiversity in lake. Because of pollution and over fishing the fish population has decreased from 156 species 50 years back to 51 - 62 in 2008 fish count.

Social entrepreneurship, as a practice and a field for scholarly investigation, provides a unique opportunity to challenge, question, and rethink concepts and assumptions from different fields of management. Social entrepreneurship is seen as differing from other forms of entrepreneurship in the relatively higher priority given to promoting social value and development versus capturing economic value.

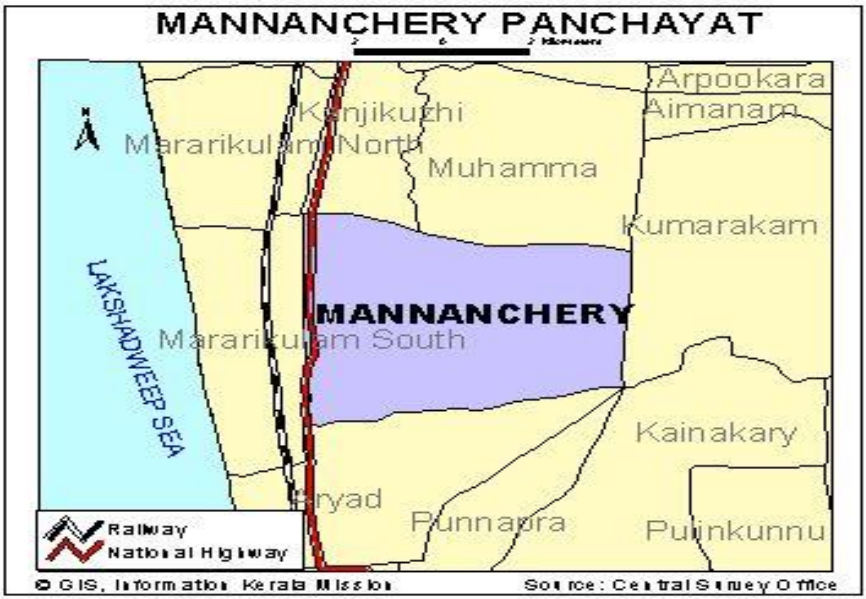
The concept of social entrepreneurship was quite often considered ambiguous and hardly able to define due to its diversity in content and approach. In India, fisheries sector shows a remarkable transition from subsistence level to commercial production. However, the indiscriminate and rapid development and essentially profit making approach of the entrepreneurs without caring for environment and social equity have led to disruption of the environment and given rise to social conflicts (Krishna, 2016). Sinha (2016) reported that, the social entrepreneurs in aquaculture can resolve to make India a healthy and far more intelligent India; they can initiate development of fish farming and train the poor men and women in fish production and short cycle rearing of fish in small ponds for personal and commercial purposes. Datta *et al.* (2016) quoted case studies for social entrepreneurs in fisheries from West Bengal. In fisheries, potential for social entrepreneurship is huge as there are challenges in getting better seed materials, appropriate application of inputs and water management in inlands for small fish farmers.

The concept of social entrepreneurship means different things to different researchers and also lacks unified definition (Dees, 1998; Certo and Miller, 2008; Hill *et al.*, 2010; Mair and Martí, 2006; Mort *et al.,* 2003; Short *et al.,* 2009) which divulged social entrepreneurship as a sub- discipline within the

field of entrepreneurship that exhibits characteristics of non-profits, government, and businesses, including applying to social problem-solving traditional, private-sector entrepreneurship's focus on innovation, risk-taking, and large-scale transformation.

Social entrepreneurship on Fish Aggregating Devices (FADs) accomplished by a couple of Self Help Groups in Mannanchery gramapanchayath. (Figue 11.1) It was indeed a wholehearted attempt of a group of nature loving fisherfolk without any consideration on micro enterprises and income generation. Matsyagandhi, Chithira, Ponnad, Kalpaka and Ambalakkadavu are the SHGs mobilized for this venture under the NGO ATREE.

Figure 11.1 Map of Mannanchery gramapanchayath



It has a broad mission in this endeavor. In order for patterns to change, it becomes necessary to involve community in decision making and planning. People in the area have traditional knowledge handed-down from past generations of observation and experience that is relevant to the understanding of how the environment works and what is needed to sustain it. When communities acquire the opportunity to control their resources, a

bottom up management approach can work, if done in a way harmonious with environmental needs. Stakeholders, in this case are burdened by this management obstacle, and unable to use their regime to determine appropriate mechanisms towards a solution. Therefore, it is essential for stakeholders to have the power to execute decisions based on socio-environmental needs of the community. 'Home of fishes': A democratic approach towards conserving fishes and livelihoods. The unified attempt of 5 SHGs in this social entrepreneurship venture irrespective of money motivation is an encouraging attempt initiated under the wholehearted co-operation of Mannancheri grampanchayat along with ATREE.

In this expedition, the major aim and methodology employed from CMFRI essentially consist of extension research. Organizing farmer interactions for awareness creation and training programmes followed by research focusing on gender analysis, computation of Performance Level and Empowerment Index of SHGs and the success case study elucidation. The study stressed on undertaking gender analysis of the members of SHGs in Mannanchery gramapanchayath who accomplished the social entrepreneurship on FADs, assessing the Performance level of SHGs and Empowerment Index and elucidating the success case study of SHGs on social entrepreneurship.

The Practical Extension part consisted of awareness & ECB Training programmes systematically executed and then extension research part focusing on socio economic surveys with a pre-tested and structured data gathering protocol with standardized scales and indices. Massive awareness programmes and farmer interaction meets were organized in Mannanchery gram panchayath site with the involvement of scientists from CMFRI. Practical training programmes on social entrepreneurship on FADs were also undertaken systematically with the involvement of fisherfolk members of SHGs. Stage by stage Video documentation in the various phases of activities of SHGs in this venture were documented. In the extent of involvement in various stages of the activities of social entrepreneurship by the members like Site selection, Extension service, Collection/Purchase of materials, construction of FAD, Installation of FAD, Maintenance etc. were quantified with structured interview schedule. The gender mainstreaming (Daly, 2005) to assess the equity and equality of men and women counterparts of the family were separately interviewed to assess the access

to resources, participation profile, decision making aspect and gender need analysis.

Plate 11.1 FAD installation by SHG members and project team

For assessing the Performance level of SHGs and Empowerment Index, appropriate scales and indices were developed. The Level of Performance (NABARD, 2007 & Shalumol, 2015) was assessed by the checklist containing 16 dimensions developed by NABARD arranged in 3 point continuum. Similarly the Empowerment Index was quantified based on 8 dimensions (Meena *et al*, 2012) such as Confidence building, Self-esteem, Decision making pattern, Capacity building, Psychological Empowerment, Social Empowerment, Economic Empowerment and Political Empowerment. The extent of empowerment was quantified as the earlier procedure of assessing the difference between the scores obtained as per the perception of the SHG members before and after joining the SHG. For computing the Empowerment Index, the scores obtained for each dimensions were first made uniform and that was multiplied by the weightages assigned by the judges while relevancy rating for ascertaining the content validity of the scale through scale product method. Each of the dimensions of Empowerment Index was computed by the scores of the sub-dimensions coming under the categories of these 8 dimensions.

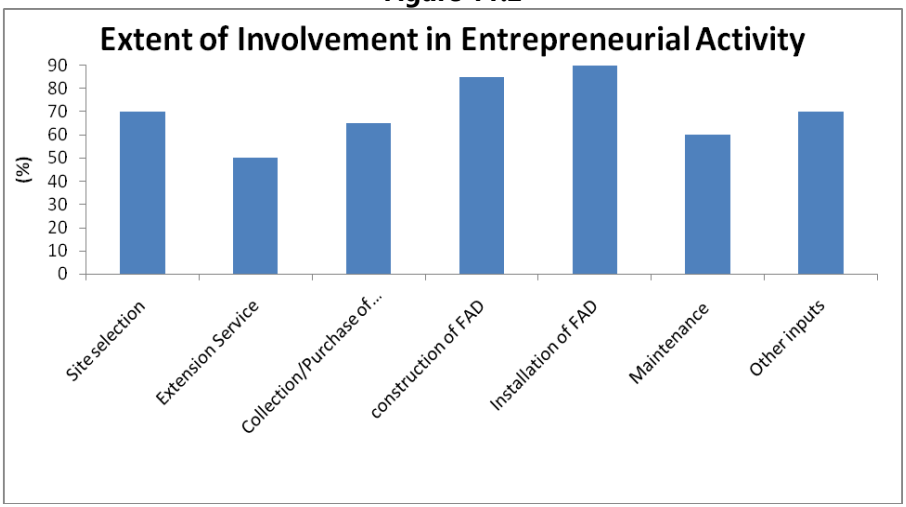
The extent of involvement in various phases of this activity was also quantified and results are presented in Table 11.1. and Figure 11.2. Maximum participation of the members and families was observed during construction of FAD and Installation of FAD.

Table 11.1 Extent of Involvement in Entrepreneurial Activity

Activity	%
Site selection	70
Extension Service	50
Collection/Purchase of materials	65
construction of FAD	85
Installation of FAD	90
Maintenance	60
Other inputs	70

An assessment of gender perspectives in terms of gender need and gender role in Social entrepreneurship on Fish Aggregating Devices (FADs) accomplished by SHGs in Mannanchery grampanchayath was also done as a part of the study. All households were selected and male and female counterparts in each household were separately interviewed.

Figure 11.2



The gender participation in different activities, gender needs, decision making and access and control over the resources in respect to social entrepreneurship on FADs were analyzed. Opinion of men and women in above aspect was found to be similar without any significant difference. However, differential gender response was observed among SHGs. In case of participation and need, both men and women share almost the same opinion. (Sahoo *et al*, 2009, Raghavan, 2009) Socio-economic, technological and export support requirement was analyzed for gender mainstreaming. Male and female respondents in a household were separately interviewed for getting the response of gender needs in terms of access to resources in Social entrepreneurship on FADs, participation in various activities of this venture, gender needs and decision making in various stages. The typology access to resources in gender response such as female alone, male **<**female, male **=** female**,** male **>**female and male is alone indicated separately for male and female respondents (Table 11.2) A perusal of the table 11.2 clearly shows the response of male and female separately in access to resources concerned with Social entrepreneurship on Fish Aggregating Devices (FADs). Among the responses of female and male for the items of access to resources, most of the items are dominated by 'male alone' except for 'the construction of FAD and Installation of FAD are being performed by male and female together.

Table 11.2 Access to resources for FAD unit

Resource Access	Female Alone		M<F		M=F		M>F		Male Alone		No Access	
	F	M	F	M	F	M	F	M	F	M	F	M
Site selection	0	0	0	0	30	20	0	0	70	80	0	0
Extension Service	0	0	0	0	0	0	0	0	100	100	0	0
Collection/Purchase of materials	0	0	0	0	50	30	0	0	50	70	0	0
construction of FAD	0	0	0	0	0	0	0	0	100	100	0	0
Installation of FAD	0	0	0	0	0	0	0	0	100	100	0	0
Maintenance	0	0	0	0	0	0	0	0	100	100	0	0
Other inputs	0	0	0	0	10	40	0	0	90	60	0	0

Plate 11.2 SHG members installing FADs

Similarly the participation profile in various activities concerned with Social entrepreneurship on Fish Aggregating Devices (FADs) is presented in Table 11.3. The gender response in participation in various activities in this venture such as female alone, male **<**female, male **=** female**,** male **>**female and male alone indicated separately by male and female are presented in Table 11.3.

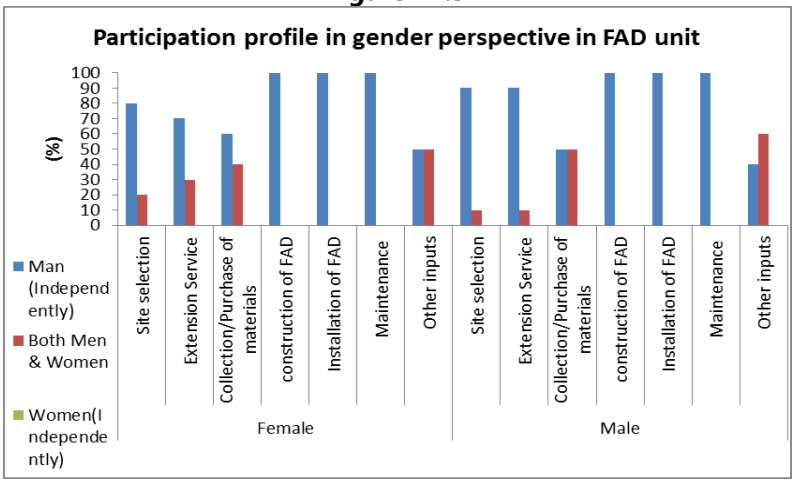
Table 11.3: Participation profile in gender perspective in FAD unit

Activity	Man (Independently)		Men and women together		Women (Independently)	
	Female	Male	Female	Male	Female	Male
Site selection	80	90	20	10	0	0
Extension Service	70	90	30	10	0	0
Collection/Purchase of materials	60	50	40	50	0	0
construction of FAD	100	100	0	0	0	0
Installation of FAD	100	100	0	0	0	0
Maintenance	100	100	0	0	0	0
Other inputs	50	40	50	60	0	0

Plate 11.3 FAD installation process

A perusal of the table 11.3 and Figure 11.3 clearly indicates the participation profile in gender perspective in Social entrepreneurship on Fish Aggregating Devices (FADs) for male and female separately. It can be glanced clearly from the perusal of the table that, most of the activities are male dominating operations, as per the responses of both male and female. But the construction of FAD and Installation of FAD activities are being performed by both men and women.

Figure 11.3



In the same way, response to the gender needs in various activities concerned with Social entrepreneurship on FADs of male and female separately is presented in Table 11.4 and Figure 11.4. The gender response in need areas in Social entrepreneurship as per the importance assigned by male and female counterparts are presented in the table. With regard to the gender needs, the most important need area expressed by both male and female counterparts includes construction of FAD and Installation of FAD.

Table 11.4 Gender needs in activities of FAD unit

Need Area	Important		More Important		Most Important	
	Female	Male	Female	Male	Female	Male
Site selection	40	50	40	20	20	30
Extension Service	90	70	10	30	0	0
Collection/Purchase of materials	50	20	50	80	0	0
construction of FAD	0	0	40	20	60	80
Installation of FAD	0	0	0	0	100	100
Maintenance	60	90	40	10	0	0
Other inputs	50	40	50	60	0	0

Figure 11.4

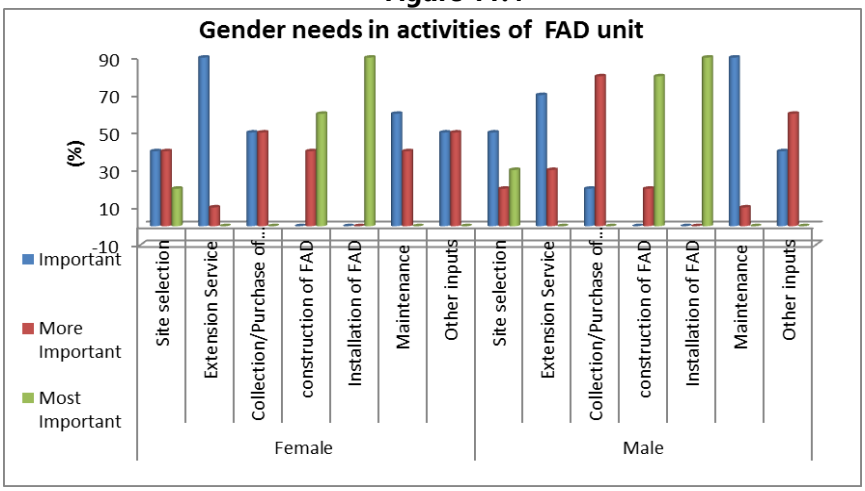


Plate 11.4 SHG members installing FADs in Mannancheri

Plate 11.5 Project team interacting with Mannancheri grampanchayath authorities

The decision making aspect of FAD was quantified and presented in Table 11.5 and Figure 11.5. It is quite obvious from the table that, the decision making on various activities on FAD installation essentially was performed by men counterparts in the fisherfolk households with sufficient consultation with female counterparts in Site selection, Extension Services, Collection/Purchase of materials, maintenance etc. In the meantime, the laborious operations like construction and installation of FADs etc. were dominated by men.

Table 11.5 Decision making in various phases of FAD unit

Decision making in Activity Name	Female Alone		M<F		M=F		M>F		Male Alone	
	F	M	F	M	F	M	F	M	F	M
Site selection	0	0	0	0	60	90	40	10	0	0
Extension Service	0	0	0	0	50	80	50	20	0	0
Collection/Purchase of materials	0	0	0	0	50	40	50	30	0	30
construction of FAD	0	0	0	0	0	0	10	0	90	100
Installation of FAD	0	0	0	0	20	30	0	0	80	70
Maintenance	0	0	0	0	30	40	0	0	70	60
Other inputs	0	0	0	0	50	60	0	0	50	40

Figure 11.5

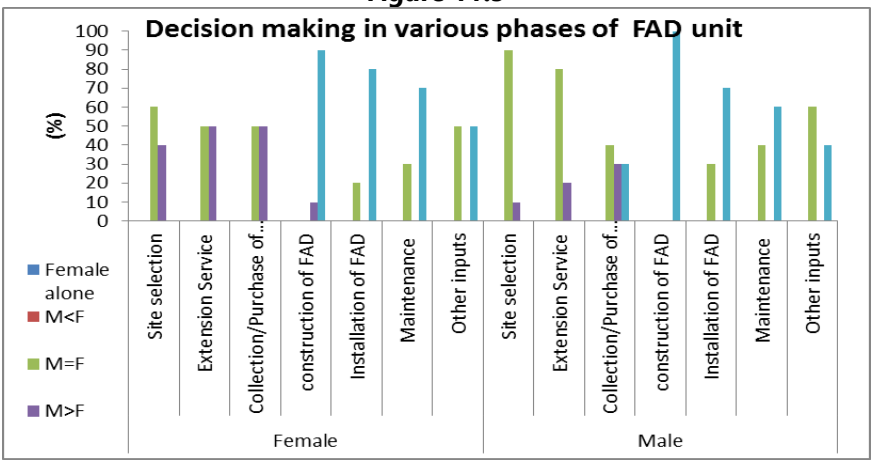


Plate 11.6 A Long view of FADs installed by SHG members in Mannancheri

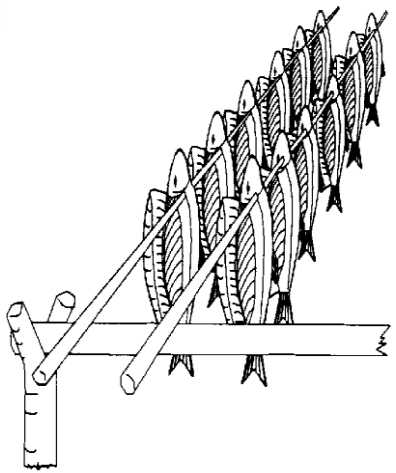
Plate 11.7 Installation of FAD by District Panchayath President at Mannancheri

Plate 11.8 Inaugural function of FAD installation in Mannancheri gramapanchayath

Austin *et al,* 2006 classified entrepreneurship into 2 types: commercial entrepreneurship and social entrepreneurship. They both focus on the role of innovation. as commercial one aims at private gains and social one aims at social value creations. When the commercial entrepreneurship measures performance in terms of financial terms, the social entrepreneurship is hard to measure since value they create is intangible. There is no difficulty in attracting venture capital and the sources in Commercial entrepreneurship: but the Social entrepreneurship lacks enough financial capital to keep running the venture. Ventures created by social entrepreneurs can certainly generate income, and they can be organized as either not for profits or for-profits. The long lasting benefits of the present context research and practical extension of social entrepreneurship through FADs highlighted in this paper also are yet to be explored through the probable abundance of fish catch after a specific span of time. However, an exhaustive research with larger sample and wider area after that time span would be of ample scope. Success case study on social entrepreneurship elucidated has been brought out as a scientific documentary movie entitled '*Social Entrepreneurship: A Pioneering SHG Venture though Fish Aggregating Devices*' can act as a case model/practical manual for mobilizing SHGs in other allied sectors on a sustainable basis.

CHAPTER 12

Dry Fish SHGs



Dry Fish Units in Ramanathapuram district of Tamil Nadu

"The strength of the team is each individual member. The strength of each member is the team." ***-Phil Jackson***

Tamil Nadu State with the second longest coastline in the country covers an area of 1,076 km comprising 13 coastal Districts. Tamil Nadu one of the leading marine fish producing states of India holding second position with an estimated marine fish production of 0.709 million tonnes (CMFRI, 2016). Ramanathapuram district is an important coastal district contributing 27 % of fish production of Tamil Nadu. There are 178 fishing villages, with nearly two lakhs fisherfolk population in the district which comprises 24 per cent to the total fishermen population in Tamil Nadu (CMFRI, 2010). The district has 1,707 (29.2 % of total fishing unit) mechanised boats, 3,140 (53.7%) motorised and 1,002 (17.1%) non-mechanised fishing units (State Fisheries Department, Government of Tamil Nadu, 2014-15). There are number of entrepreneurial activities is taken up successfully in Ramanathapuram district of Tamil Nadu.

Figure 12.1 Map showing the locale of the study

The present study on extent of involvement in entrepreneurial activity (dry fish unit) by the members like purchase of raw materials, availing extension service, weighing mechanisms, salting methods, drying, packing materials/devices, non-institutional credit, marketing of finished products, account and record keeping were quantified with structured interview schedule. The gender mainstreaming to assess the equity and equality of men and women counterparts of the family were separately interviewed to assess the access to resources, participation profile, decision making aspect and gender need analysis

Plate 12.1 Dry Fish Unit–Rameswaram

To study the impact of SHGs in Gender mainstreaming on dry fish enterprise, a total of 10 units were randomly selected in Ramanathapuram district of Tamil Nadu. The Empowerment Index and Level of Performance were quantified with the standardized interview schedules. (Table12.1)

Table 12.1: Level of performance and Empowerment Index of selected Self Help Groups

No	SHG Name & Location	Level of Performance	Empowerment Index
1	Dolphin, Pamban	71.2	0.79
2	Lotus, Rameswaram	68.5	0.77
3	Starfish, Pamban	52.5	0.60
4	Nesapillai, Pamban	62.8	0.71
5	Little Flower, Rameswaram	76.4	0.84
6	Murugavel, Mandapam	79.5	0.86
7	Arasu, Mandapam	57.4	0.65
8	Natchathiram, Rameswaram	73.6	0.81
9	Neithal, Thangachimadam	66.7	0.74
10	Indhus, Mandapam	55.4	0.63

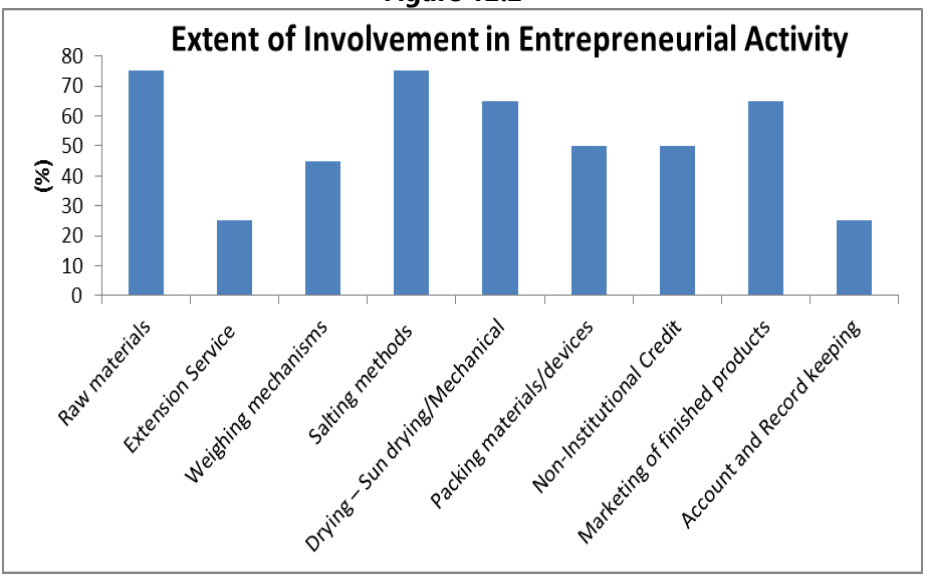
The mean empowerment index was found to be 74.00. Indicator-wise analysis revealed that the culture empowerment index (90.57) and psychological empowerment index (84.46) was very high. The political empowerment index (38.37) was found to be very low. The economic and social empowerment index was 76.88 and 79.74 respectively. Overall assessment of performance of Self Help Groups on various factors was found to be good.

The extent of involvement in various phases of the Entrepreneurial Activity was also quantified and expressed in Fig 12.2. Maximum participation of the members and families was observed during raw material procurement, salting method, drying and marketing of finished products.

Table 12.2: Extent of Involvement in Entrepreneurial Activity

Activity	%
Raw materials	75
Extension Service	25
Weighing mechanisms	45
Salting methods	75
Drying – Sun drying/Mechanical	65
Packing materials/devices	50
Non-Institutional Credit	50
Marketing of finished products	65
Account and Record keeping	25

Figure 12.2



The gender participation in different activities, gender needs, decision making and access and control over the resources in respect to dry fish enterprise were analyzed. It was found that there is a significant difference on the opinion of men and women in above aspect. Significantly, raw material procurement, weighing mechanism, salting method, packing, credit arrangements, account and record keeping are under the control of women

and the most important requirement perceived by both men and women were availing extension service and marketing. Male and female respondents in a household were separately interviewed for getting the response of gender needs in terms of access to resources in dry fish enterprise, participation in various activities of dry fish enterprise, gender needs and decision making in various stages. The typology access to resources in gender response such as female alone, male **<**female, male **=** female**,** male **>**female and male is alone indicated separately for male and female respondents (Table 12.3).

Plate 12.2 Sun drying yard in Rameshwaram

It is clear from table 12.3 that among the responses of female and male for the items of access to resources, most of the items are dominated by 'female alone' except for availing extension service, packing and marketing role being performed by male and female together.

Table 12.3: Access to resources for dry fish unit

Resource Access	Female Alone		M<F		M=F		M>F		Male Alone		No Access	
	F	M	F	M	F	M	F	M	F	M	F	M
Raw materials	100	100	0	0	0	0	0	0	0	0	0	0
Extension Service	60	50	0	0	40	50	0	0	0	0	0	0
Weighing mechanisms	100	100	0	0	0	0	0	0	0	0	0	0
Salting methods	100	100	0	0	0	0	0	0	0	0	0	0
Drying – Sun drying/Mechanical	100	100	0	0	0	0	0	0	0	0	0	0
Packing materials/devices	70	80	0	0	30	20	0	0	0	0	0	0
Non-Institutional Credit	100	100	0	0	0	0	0	0	0	0	0	0
Marketing of finished products	80	50	0	0	20	50	0	0	0	0	0	0
Account and Record keeping	100	100	0	0	0	0	0	0	0	0	0	0

Plate 12.3 Dry fish unit- Rameshwaram

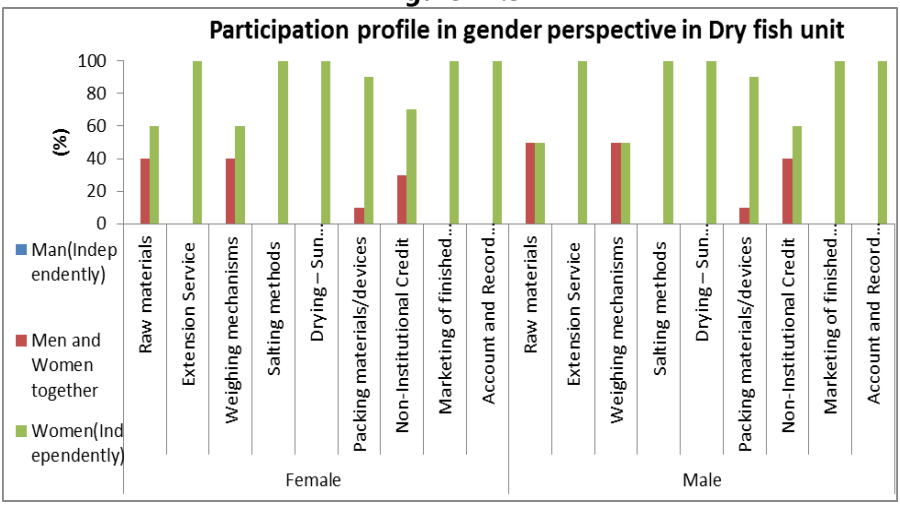
Similarly the participation profile in various activities concerned with dry fish enterprise is presented in Table 12.4. The gender response in participation in various activities of dry fish unit in such as female alone, male **<**female, male **=** female**,** male **>**female and male alone indicated separately by male and female are presented in Figire 12.3.

Table 12.4: Participation profile in gender perspective in Dry fish unit

Activity	Man (Independently)		Men and Women together		Women (Independently)	
	Female	Male	Female	Male	Female	Male
Raw materials	0	0	40	50	60	50
Extension Service	0	0	0	0	100	100
Weighing mechanisms	0	0	40	50	60	50
Salting methods	0	0	0	0	100	100
Drying – Sun drying/Mechanical	0	0	0	0	100	100
Packing materials/devices	0	0	10	10	90	90
Non-Institutional Credit	0	0	30	40	70	60
Marketing of finished products	0	0	0	0	100	100
Account and Record keeping	0	0	0	0	100	100

It is evident from Table 12.4 and Figure 12. 3 that, most of the activities are female dominating in dry fish units, as per the responses of male and female counterparts of the families of SHGs. But purchase of raw materials, weighing mechanism and credit arrangement etc. are being performed by both men and women. Even a single activity was not performed by man independently.

Figure 12.3

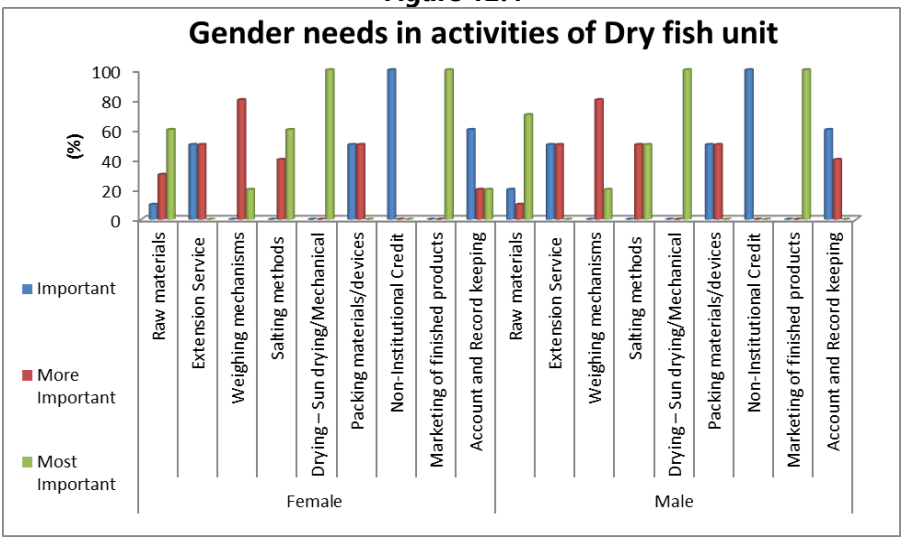


In the same way, response to the gender needs in various activities concerned with dry fish unit of male and female separately is presented in Fig 12.5. The gender response in need areas in dry fish unit as per the importance assigned by male and female counterparts are presented in the Fig 12.4.

Table 12.5: Gender needs in activities of Dry fish unit

Need Area	Important		More Important		Most Important	
	F	M	F	M	F	M
Raw materials	10	20	30	10	60	70
Extension Service	50	50	50	50	0	0
Weighing mechanisms	0	0	80	80	20	20
Salting methods	0	0	40	50	60	50
Drying – Sun drying/Mechanical	0	0	0	0	100	100
Packing materials/devices	50	50	50	50	0	0
Non-Institutional Credit	100	100	0	0	0	0
Marketing of finished products	0	0	0	0	100	100
Account and Record keeping	60	60	20	40	20	0

Figure 12.4



With regard to the gender needs, the most important need area expressed by both male and female counterparts includes drying, marketing of finished products, purchase of raw materials and salting methods. Other needs like availing extension services, weighing mechanisms, credit arrangements, account and record keeping were considered important.

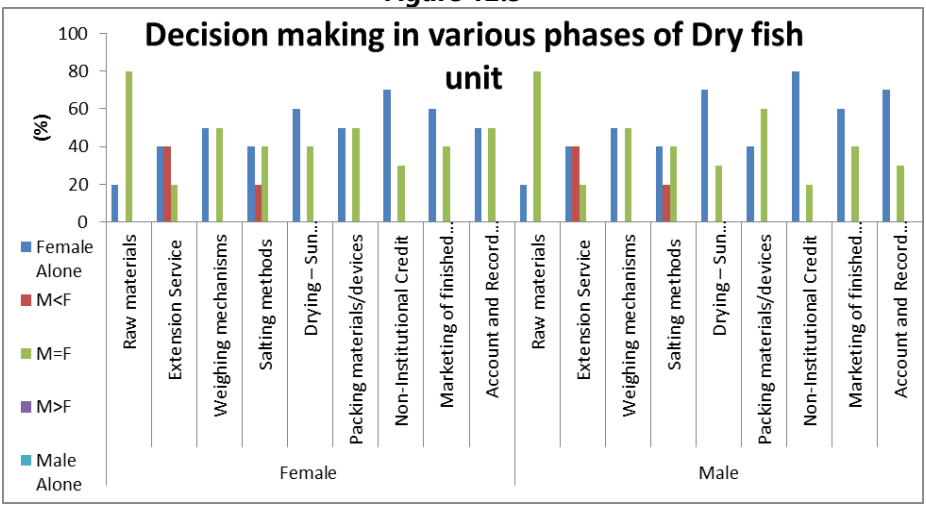
Similarly, the extent of decision making in various activities concerned with dry fish unit as per the response of male and female separately was assessed. The gender response in decision making in various activities in dry fish enterprise such as female alone, male<female, male=female, male >female and male alone indicated separately by male and female is presented in Table 12.6 and Figure 12.5. It is interesting to note that, the decision making aspect on the various phases of dry fish enterprise is being accomplished by 'female alone' in most of the activities as per the response of male and female without much difference. But the decision making of the activities like raw material procurement, salting, drying and marketing of finished products are equally shared by male and female counterparts. Overall, the study found that majority of activities in dry fish unit was carried

out by female. However some of the activities are equally shared by male and female counterparts. Hence male and female play a crucial role in success of the dry fish enterprise.

Table 12.6: Decision making in various phases of Dry fish unit

Decision making in Activity Name	Female Alone		M<F		M=F		M>F		Male Alone	
	F	M	F	M	F	M	F	M	F	M
Raw materials	20	20	0	0	80	80	0	0	0	0
Extension Service	40	40	40	40	20	20	0	0	0	0
Weighing mechanisms	50	50	0	0	50	50	0	0	0	0
Salting methods	40	40	20	20	40	40	0	0	0	0
Drying – Sun drying/Mechanical	60	70	0	0	40	30	0	0	0	0
Packing materials/devices	50	40	0	0	50	60	0	0	0	0
Non-Institutional Credit	70	80	0	0	30	20	0	0	0	0
Marketing of finished products	60	60	0	0	40	40	0	0	0	0
Account and Record keeping	50	70	0	0	50	30	0	0	0	0

Figure 12.5



Economic Feasibility analysis of Dry fish SHG units representing the indicative economics was done and presented in Table 12.7.

Table 12.7 Economic Feasibility analysis of Dry fish SHG units

	Fixed Expenditure	2014		2015		2016	
	Items	Units	Value in Rs.	Units	Value in Rs.	Units	Value in Rs.
1	Platform Drier	5	80000				
2	Plastic Baskets	5	1500				
3	Sealing Machine	1	2000				
4	Weighing Machine	1	4000				
5	Granite Table	1	5000				
6	Plastic Buckets with Lids	5	4000				
7	Plastic Crates	3	950				
8	Storage tank	2	25000				
11	Plastic Sheets	2	4000				
12	Miscellaneous		5000				
	Fixed Cost (Rs.)		**131450**				
	Variable Expenditure						
1	Raw Materials (Quantity in Kg, Value in Rs.)	30000	1200000	28000	1120000	25000	1000000
2	Labour charge (Rs.600 for 300 Mandays		240000		240000		250000
3	Building Rent		14000		14000		14000
4	Packing materials (Value in Rs.)		40000		40000		40000
5	Electricity		10000		12000		13500
6	Water Charge		1500		2000		2200
7	Transportation		30000		32000		33000
8	Labelling (Value in Rs.)		10000		10000		10000
9	Miscellaneous		5000		6000		6000
	Variable Cost		**1550500**		**1476000**		**1368700**
1	Interest on fixed cost (10%/annum)		13145		13145		13145
2	Deprecation (10% /annum)		13145		13145		13145
	Total Operating Cost (Rs.)		**1576790**		**1502290**		**1394990**

	Return Stream						
	Items	**Units**	**Value in Rs.**	**Units**	**Value in Rs.**	**Units**	**Value in Rs.**
1	Dry fish (Quantity in Kg, Value in Rs.)	18000	2160000	16800	2016000	15000	1800000
	Gross Return		**2160000**		**2016000**		**1800000**
	Net Returns		**583210**		**513710**		**405010**

The Average Operating cost for the venture on Dry fish unit by SHGs was Rs. 14,91,357/-and Average Annual Net Return was found to be Rs. Rs.5,00,643/-. The total Fixed Cost was estimated to be Rs 1,31,450/-. The fixed cost was incurred only in the first year. The main components of the Fixed Cost involved were platform drier, plastic baskets, sealing machine, weighing machines, granite tables, plastic containers, bucket and crates, plastic sheets etc. The Break Even Point (BEP) (Fixed cost/(Price per unit—Variable cost per unit) was estimated to be 4240 kg of dry fish. The economic feasibility analysis of the SHGs suggests that, the unit takes just one year to break even.

Plate 12.4 Dry fish unit - Mandapam

CHAPTER 13

Bivalve farming SHGs

Gender perspectives of bivalve farming Self Help Groups: A case study in Kerala

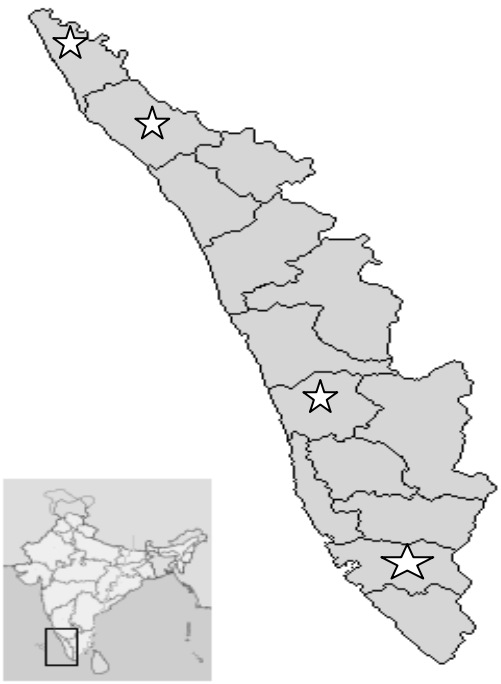
"If everyone is moving forward together, then success takes care of itself." --
Henry Ford

The open access regime existing in the harvesting of marine fishery resources in our country warrants stronger emphasis on invoking technological innovations as well as management paradigms that reconcile livelihood issues with concerns on resource conservation. Being the premier Marine Fisheries Research Institute in India with more than 6 decades of service to the nation, the Central Marine Fisheries Research Institute (CMFRI) suggests ways and means to sustain the potential source of food in capture and culture fisheries and their optimum utilisation. Innovations do not happen in a socio-political vacuum. It is the extent of partnership between the research and the client system that decides the fate of any technology in terms of its adoption or rejection. Rational utilization of common property resources for sustainable development without endangering the environment is possible through community participation. Bivalve farming (especially mussel and oyster culture) is one such technology that has offered good scope for enhancing food and livelihood security of the stakeholders in our coastal agro climatic zone and community participation is are important element of this technology. Mussel farming has already been proved as one of the profitable enterprises in the coastal belts as a subsidiary income-deriving source of coastal fisherfolk. The experimental trials conducted by CMFRI have proved the techno-economic feasibility of mussel farming. (Asokan *et al*, 2001, Vipinkumar.V.P *et al*, 2001, Vipinkumar.V.P and Asokan, P.K. 2008). Here an attempt has been made on exploration of a couple of case studies in Kasargod and Kollam districts of

Kerala on dynamics of Self Help Groups of fisherfolk engaged in bivalve farming and an assessment of gender perspectives in bivalve farming.

Figure 13.1 Map of Kerala showing the locale of the study

Kasargod, Malappuram, Ernakulam & Kollam Districts



Kasargod, the extreme northern district of Kerala is particularly notable for mussel and oyster farming as it has been successfully accomplished by the women's Self Help Groups (SHGs). These groups were given financial assistance in the scheme namely; SGSY (Swarnajayanthi Gramaswa Rozgar Yojana) by the state government which takes care of economic empowerment of weaker sections (Vipinkumar *et al* 2001). Subsidies, bank loans etc are the part and parcel of the scheme which focuses attention on poverty alleviation through organised Self Help Groups. This programme looks into training, credit, marketing, technical knowledge and basic facilities

necessary for the upliftment of the poor to bring them above the poverty line within three years in such a way that they should have a monthly earnings of at least Rs 2000 /-. This district possesses an area of 1992 km^2 with a population of 10, 71,508. The district has a population density of 538 $km^{2,}$ average growth rate of 22.78 % and literacy rate 82.51 %. Major means of livelihood of the villagers are agriculture, fishing, coir retting, coconut husk, toddy tapping etc. There is tremendous potential for aquaculture diversification in Kasargod coastal belts. Water bodies in these coastal belts have ample scope for the judicious utilisation of finfish culture, prawn and crab farming. (Asokan *et al* 2001).

Plate 13.1: Women members of SHGs at the site of Mussel farming

Malappuram district is composed of portions of the former Palakkad and Kozhikode districts: Ernad taluk and portions of Tirur taluk in Kozhikode district, and portions of Perinthalmanna and Ponnani taluks in Palakkad district. Malappuram district contains abundant wildlife and a number of small hills, forests, rivers and streams flowing to the west, backwaters and paddy, arecanut, cashew,pepper, ginger, pulses, cocon ut, banana, tapioca, and rubber plantations. Malappuram is one of two Muslim-majority districts in south India. Malappuram is the 50th-most-populous of India's 640 districts, with a population density of 1,158

inhabitants per square kilometer (3,000/sq mi). Its population-growth rate from 2001 to 2011 was 13.39 percent. Area is 3,550 sq.km, population 41, 10,956.

Spanning an area of about 3,068 km^2, Ernakulam district is home to over 12% of Kerala's population. Its headquarters is located at Kakkanad, a suburb of Kochi city. Ernakulam is known as the commercial capital of Kerala. The district includes the largest metropolitan region of the state, Greater Cochin. Ernakulam district is the highest revenue yielding district in the state. Ernakulam district is the richest district in Kerala in terms of GDP and per capita income. It contributes 41.74% of the total state revenue. Ernakulam district is bestowed with all the geographical factors, which help the development of industry, and it is in the vanguard of all other districts in Kerala in the field of industry. The availability of all types of transport facilities viz., road, rail, canal, sea, air is a factor which is unique to this district. Ernakulam is the biggest commercial centre in the state of Kerala. The district has a population density of 1,069 inhabitants per square kilometer (2,770/sq mi). Its population growth rate over the decade 2001–2011 was 5.6%. Ernakulam has a sex ratio of 1028 females for every 1000 males,[and a literacy rate of 95.68%.

Plate 13.2: Muthuchippy SHG members at Kadalundy Nagaram

Plate 13.3: Mussel seeding performed by women SHG members in training programme

Quilon or Kollam, is an old seaport town on the Arabian coast. About thirty per cent of this district is covered by the Ashtamudi Lake, thereby making it the gateway to the backwaters of the state. Kollam District which is a veritable Kerala in miniature is gifted with unique representative features - sea, lakes, plains, mountains, rivers, streams, backwaters, forest, vast green fields and tropical crop of every variety both food crop and cash crop. Area: 2,491 km^2 with a population: 25, 84,118 and the Literacy level of 91.49 %. The district has a prominent place in the field of agriculture. The total extent of land under cultivation is 2,18,267 hectares. The principal crops are paddy, tapioca, coconut, rubber, pepper, banana, mango and cashew**.** About 70 per cent of the population is engaged in agriculture. Coconut gardens extend to about 75,454 hectares. The five major crops: paddy, tapioca, coconut, rubber, pepper - are cultivated in an area of 1,73,847 hectares. Small and marginal farmers constitute more than 95% of the farming community and the average per family holding is 0.21 hectare.

The basic data with regard to the fisheries sector of Kasargod, Malappuram, Ernakulam and Kollam are presented in Table 13.1

Table 13.1: General profile of fisheries sector in Kasargod, Malappuram, Ernakulam and Kollam districts

Sl. No	Parameter	Kasargod	Malappuram	Ernakulam	Kollam
1	Length of the Coast line	70 km	70 km	46 km	37 km
2	No. of Fishing villages	16	23	21	26
3	Fisherfolk population	30653	98120	42083	63300
4	Active fishermen	7669	22238	8934	16677
5	No. of landing centers	19	11	20	18
6	Traditional fishing family	4500	14747	8898	12273
7	No. of BPL family	3255	6760	4405	8458
8	Sex ratio(female per 1000 male)	1007	967	970	935
9	Membership in fisheries cooperative society	7685	14589	9210	11307

Kollam is an important maritime district of the state with a coast line of 37.3 kms. Fishing has a prominent place in the economy of the district. Neendakara and Sakthikulangara villages thrive in fishing. An estimated number of 22,000 persons are engaged in fishing and allied activities. Cheriazheekkal, Alappad, Pandarathuruthu, Puthenthura, Neendakara, Thangasseri, Eravipuram, Paravoor and Thekkumbhagam are nine among the 26 important fishing villages. There are 24 inland fishing villages also. Considering the unique location and infrastructure available, the Government has initiated steps for establishing a fishing harbour at Neendakara which is expected to augment fish production by 15%. Average fish landing is estimated to be 85,275 tonnes per year. One third of the state's fish catch is from Kollam. There are 93 producer co-operatives, two credit cooperatives and one marketing cooperative in the fisheries sector. There are 38 Fishermen Development Welfare Cooperative Societies in the district. Nearly 3000 mechanised boats are operating from the fishing harbour. FFDA and VFFDA are promoting fresh water fish culture and prawn farming respectively. A model fishing village with 100 houses is coming up at Eravipuram. A model prawn farm is coming up at Ayiramthengu and a few new hatcheries are also coming up to cater to the needs of the aqua culturists. About 60% of the production of prawn is from the state. 150 families are engaged in fishing as the main occupation and about 300

families as subsidiary occupation. Similarly, Padanna panchayat has an area of 13.08 km^2 with a population of 17, 961 out of which 12, 746 people are literate. About 200 families are engaged in fishing as main occupation and about 400 families as part time occupation. The brackish water estuary systems of these panchayats are extremely suitable for bivalve farming.

The practical dissemination of mussel culture in the coastal belts of potential maritime locations in Malabar coasts was undertaken in Kadalundy areas of Vallikkunnu gramapanchayat in Malappuram district of northern Kerala by training 62 women fisherfolk with the Community Development Scheme (CDS) of the Kudumbasree District Mission of the panchayat. These women were mobilised into 12 SHGs comprising 60 members Each SHG had a provision of loan amount worth Rs 1,25,000/- and subsidy of Rs 50,000/- with a reasonable amount of Rs 6,250/- as Beneficiary contribution. These SHGs undertook for mussel culture in estuary with the training assistance imparted by CMFRI. The five members of each SHG possessed the joint responsibility through a strong internal amendment with a firm base of interpersonal trust. These SHGs maintained the registers and documents systematically and performed group meetings in time as per the norms and standards stipulated for the SHGs by the facilitators.

CMFRI also imparted training on Edible Oyster culture in Moothakunnam areas of Vadakkekkara grampanchayat in Ernakulam district with a successful demo which also attracted SHGs mobilised by Kudumbashree District Mission. There were 35 SHGs mobilised by women who successfully undertook oyster farming with 545 beneficiaries.

Plate 13.4: SHG leader at the mussel culture site

Table 13.2 Details of the SHGs identified in selected districts

Name of the district	Name of the panchayath	Village	Samples selected (Self Help Groups)	No. of members
Kasargod	Cheruvathur	Kaithakkad	Mahatma Mussel Unit	13
		Kavunchira	Kairali Mussel Unit	15
		Kaithakkad	Kaithakkad Mussel Unit	13
	Padanna	Thekkekkad	Thekkekkad Mussel Unit	12
		Vadakkekad	Vadakkekkad Mussel Unit	15
		Ori	Ori Mussel Unit :	13
Malappuram	Vallikkunnu	Hirosenagar	Nila	5
			Puthuma	5
			Jalamythri	5
			Theeram	5
			Olam	5
			Soft	5
			Chippy	5
			Ganga	5
			Keerthy	5
			Kanakam	5
		Kadalundy nagaram	Muthuchippy	5
			Sagararani	5
Ernakulam	Vadakkekkara	Moothakunnam	Kudumbashree SHG units 35 nos	545
Kollam	Thekkumbhagam	Dhalavapuram	Mahatmaji Kudumbasree Group	19
		Malibhagam	St.Maries Kudumbasree Group	16
	Neendakara	Puthan thuruthu	Ashtajalarani Group	18
		Pannakkal thuruthu	Chavara south Group	15

This study was undertaken in two panchayats namely Cheruvathur and Padanna in Kasargod district and Thekkumbhagam and Needakara in Kollam district, Vadakkekkara panchayat in Ernakulam district and Vallikkunnu panchayath in Malappuram district. The study area, Cheruvathur panchayat has an area of 18.37 km^2 with a population of 24, 504 out of which 18, 631 people are literate. Similarly, in Kaunagappally thaluk situated 27 Kms north to Kollam, Thekkumbhagam and Needakara panchayats were selected and of these, Dhalavapuram and Malibagam villages of Thekkumbhagam panchayat and Pannakkal thuruthu and Puthan thuruthu villages of Neendakara panchayaths were selected for data collection. As much as 250 households undertaking bivalve farming were selected and male and female counterparts in each household were separately interviewed, comprising a total of 500 respondents. The data regarding gender participation in different activities, gender needs, decision making and access and control over the resources in respect to bivalve culture were collected through personal interviews of the respondents with the help of a pre tested well structured interview schedule. In addition to this, 10 Self Help Groups of women engaged in bivalve culture at random from 2 districts were selected for drawing explorative case studies to measure the Empowerment Index and Level of Performance through personal interviews of the respondents. (Table13.2).

The Group Dynamics of members of Self Help Groups was measured by developing an index called Group Dynamics Effectiveness Index (GDEI) which was operationally defined for the study as the sum-total of the forces among the member of SHG based on the sub-dimensions, such as participation, influence & styles of influence, decision making procedures, task functions, maintenance functions, group atmosphere, membership, feelings, norms, empathy, interpersonal trust and achievements of SHG. (Vipinkumar and Baldeo Singh, 1998) All these sub-dimensions were measured by a set of inventories containing appropriate questions arranged in a three-point continuum of always, sometimes and never with scoring pattern 2.1 and 0 for positive and vice versa for negative questions. The Benefit-Cost ratio was analysed in each group and cost dynamics were worked out. The problems and constraints faced by the women were also assessed in each case and listed out. The cost estimates of all the selected

Self help Groups were also computed and by taking in to consideration of major expenditure required for bivalve farming is for the materials such as bamboo, nylon rope, coir, cloth, seed, etc. and labour costs essentially cover construction, seeding, harvesting etc. the Net Operating Profit and B:C ratio also were calculated for different SHGs to draw valid inferences.

Plate 13.5: Harvest undertaken by men counterparts of SHG members

Results and discussion

The basic data with regard to fisheries sector of Kasargod,Malappuram, Ernakulam and Kollam districts are presented in Table 1. The study, focused attention on Empowerment Index as a trait of Self Help Groups, cost estimates and gender dynamics. Though the above tables were the speculated computation of economics of mussel culture in a typically ideal set up without constraints, by the micro enterprise consultants of the Community Development Scheme (CDS) of Kudumbashree unit of Vallikkunnu panchayats, the present research study undertaken in the first year of implementation of the mussel culture expeditions of women SHGs brought out commendable significant results. The harvest results in the first year gave a B.C ration of 3.5:1 on an average. Development and modification of tools for data collection of molluscan culture technologies in the potential maritime locations in Malabar were systematically undertaken as a part of the study.

Profile of Cost Estimates of Bivalve Farming Self Help Groups

The major expenditure required for mussel farming is for the materials such as bamboo, nylon rope, coir, cloth, seed, etc. and labour costs essentially cover construction, seeding, harvesting etc. The women's groups constituted in the scheme DWCRA started mussel farming as early as 1996-97 and are assisted in the beginning itself with a loan amount worth Rs 8800/- per member with a subsidy amount worth Rs 4400/-. The duration of the loan was 5 years and the rate of interest is 12.5 % per annum. In addition to this, a revolving fund of Rs 5000/- was also provided without interest. When the SHGs are economically empowered with the provision of loan facilities, the returns from mussel farming help them to repay the loan slowly. The loan was granted through Farmers' Service Cooperative Banks and North Malabar Gramin Banks in Cheruvathur and Padanna panchayaths of Kasargod district. Majority of the SHGs showed considerable progress in repayment of the loans, which can be concluded as an indication of the profitability of mussel farming. The BC Ratio in all the ten SHGs was computed and found as substantially good which proves the profitability of Mussel farming in the initial trial itself and since during the subsequent years, material costs such as those of bamboo, rope, cloth and labour cost in construction etc. are negligible, this ensures reasonable profit as a major consequence of adoption of mussel farming enterprise bringing about economic empowerment of rural women through organised SHGs. The indicative economics tables of mussel farming computed by the microenterprise consultants of Vallikkunnu panchayath are presented in Tables 13.3 to 13.8.

Table 13.3 Source of Fund

Beneficiary contribution	6250
Bank loan	118750
Total	125000

Table 13.4 Interest Cost

Sl.No	Particulars	Amount
1	Total Bank Loan	118750
2	Amount in which interest is charged	68750
3	Subsidy	50000

Table 13.5 Bank Loan Break up

1	Amount in which interest is charged	68750
2	Bank loan payment duration	5 yrs
3	Bank loan interest	12%
4	Loan principal amount repayment	13750

Table 13.6 Variable Cost

Particulars	I st	II nd	IIIrd	IV	V
Raw material	72000	75600	79380	83349	87516
Transportation charge	2000	2100	2205	2315	2430
Total variable cost	74000	77700	81585	85664	89946
Fixed cost Man power	120000	120000	120000	120000	120000
Administration	500	700	900	1100	1300
Sales labour	10000	11000	12100	13310	14641
Interest	8250	6600	4950	3300	1650
Depreciation table	7200	5760	4600	3680	2952
Pre apatite writer staff	400	400	400	400	400
Total fixed cost	146350	144460	142950	141790	140945
Total variable cost Total fixed cost	220350	222160	224535	2274504	230891
B	235147	246904	259249	272211	285821
Sales revenue *Kallumakaya* Shells	10000	10500	11025	11576	12154
Total revenue	245147	257404	270274	283787	307075
PROFIT					
A-B	24797	35244	45739	56333	76184
DSCR	1.5	2.05	2.7	3.4	5.05

Table 13.7 Profit & Loss Account

Particulars	I st Year	II nd Year	III rd Year	IV th Year	V th Year
Sales revenue	245147	247404	270274	283787	307075
Total variable cost	74000	77700	81585	85664	89946
Total fixed cost	146350	144460	142950	141790	140945
Net Profit	24797	25244	45739	56333	761184

Table 13.8 Cash in flow Statement

Cash flow statement	0	I st	II nd	III rd	IV th	V th
Own fund	6250					
Subsidy	50000					
Loan	68750					
Add DSPN table		7200	5760	4600	3680	2952
Add preliminary cost		400	400	400	400	400
Profit		24797	35244	45739	56333	76184
Total	125000	32397	41404	50739	60413	79536
Cash out flow						
Fixed asset	36000					
Preliminary cost	2000					
Working capital	87000					
Repayment of loan		13750	13750	13750	13750	13750
Cash available		18647	27654	36989	46663	65786
Opening balance		18647	46301	83290	129953	
Net cash available		18647	46301	83290	129953	195739

Plate 13.6: Harvest of the mussel by the SHG members

Table 13.9 Balance Sheet

Description	0 year	I st	II nd	III rd	IV th	V th
Liability Own fund	6250	6250	6250	6250	6250	6250
Subsidy	50000	50000	50000	50000	50000	50000
Loan	68750	55000	41250	27500	13750	
Reserve		24797	60041	105780	162113	238297
Total	125000	136047	157541	189530	232113	294547
Asset Fixed asset	36000	28800	23040	18440	14760	
Preliminary expenses	2000	1600	1200	800	400	
Working capital	87000	87000	87000	87000	87000	87000
Written down value						11808
Cash balance		18647	46301	83290	129953	195739
Total asset	125000	136047	157541	189530	232113	294547

Table 13.10 Quantification of Personal & socio psychological characteristics

Variable	Kadalundy Location
Credit Orientation	71.5 %
Economic Motivation	66.0 %
Scientific Orientation	59.5 %
Risk Orientation	61.0 %
Socio economic status	46.5 %
Social Participation	78.0 %
Extension Orientation	59.5 %
Mass media participation	79.0 %
Cosmopolitans	67.0 %

As an innovation, the new steam based meat shucking process helped to save weight loss. Further, the new depuration technology developed helped to increase the consumer safety in live oyster consumption. Because of low salinity during monsoon, mussel was harvested before the raining season and was successfully undertaken in the SHGs and breakthrough harvest results was noticed due the high market demand of the product up to 5 Rs per piece of mussel, and more than 200 Rs per kg of meat. The harvest results and cost & yield dynamics estimated in the SHGs brought out a BC ratios of 3.5: 1 on an average.

Similarly in edible oyster farming. The live oyster value chain has developed in the city of Kochi on a small-scale, and has great scope to expand to other metro cities in the country. The live oysters produced and supplied by women SHGs are being sold to the star hotels like Taj, Casino, Brunton etc. in the major cities like Kochi, Mumbai, Delhi and Bangalore. The value of live oysters increased from 1 rupee to 12 rupees and that of depurated steam shucked oyster meat increased from Rs 65 to Rs 400.

Plate 13.7: Men counterparts of SHG members active at the site

Experiences and observations already indicated that, for a group to be developed as an SHG, it requires a period of at least 36 months and it is a hectic process. It has to pass through various phases such as Formation phase, Stabilisation phase and Self Helping phase. These Self Help Groups promote a cooperative and participative culture among the members, which ensures the empowerment culture of the Self Helping phase. The loan sanctioning, utilisation, accounts maintenance and timely repayment of loans etc. are all perfectly accomplished with proper maintenance of the documented records by the group members. This ascertains the fulfillment of norms and standards of the SHG leading to economic empowerment of the members.

The major expenditure required for mussel farming is for the materials such as bamboo, nylon rope, coir, cloth, seed; etc. and labour costs essentially cover construction, seeding, harvesting etc.

Assessment of Gender Perspectives in Bivalve Farming

An assessment of gender perspectives in terms of gender need and gender role in mussel farming in Kasargod and Kollam districts was also done as a

part of the study. 200 households from each district were selected and male and female counterparts in each household were separately interviewed in these 2 districts, comprising a total of 400 households. The gender participation in different activities, gender needs, decision making and access and control over the resources in respect to mussel culture were analyzed. Opinion of men and women in above aspect was found to be similar without any significant difference. However, differential gender response was observed between the villages in Kasargod and Kollam districts. Significantly, the accounting/money transaction is under the control of women and the most important requirement perceived by both men and women is the timely availability of spat. In case of participation and need, both men and women share almost the same opinion. (Sahoo *et al*, 2009) Socio-economic, technological and export support requirement was analyzed for gender mainstreaming. Male and female respondents in a household were separately interviewed for getting the response of gender needs in terms of access to resources in mussel/oyster culture, participation in various activities of bivalve farming, gender needs and decision making in various stages. The typology access to resources in bivalve farming in gender response such as female alone, male **<** female, male **=** female**,** male **>** female and male is alone indicated separately for male and female respondents. (Table 13.11)

Plate 13.8: The harvested mussel by SHGs in the mussel culture site

Table 13.11 Access to resources for bivalve farming (n= 500)

Resource Access	Female Alone		M<F		M=F		M>F		Male Alone		No Access	
	F	M	F	M	F	M	F	M	F	M	F	M
Craft	24.5	25.13		0.5	2	2.01	12.5	14.57	61	57.79		
Extension Service	37.69	36.87	4.02	2.02	8.04	8.08	24.12	22.73	18.09	21.72	8.04	8.59
Gear	25	24.12		2.01		1.51	14	15.58	61	56.78		
Institutional Credit	26.5	26.63	1.5	1.01	13	11.06	19.5	19.6	39.5	41.71		
Market	23.62	23.74	4.02	2.02	26.63	20.2	27.14	28.79	17.59	23.74	1.01	1.52
Non-Institutional Credit	0.5	1.01	0.5		6.5	4.52	19.5	14.07	21.5	25.13	51.5	55.28
Other Inputs	0.5	1.52	3.5	3.54	11	14.65	35.5	34.34	40.5	39.39	9	6.57
Site/Water	1.5		1.5	0.5	5	5.53	35.5	41.21	56.5	52.76		
Total	17.46	17.37	1.88	1.45	9.01	8.43	23.47	23.85	39.49	39.9	8.7	9

A perusal of the table 13.11 clearly shows the response of male and female separately in access to resources concerned with bivalve farming. Among the responses of female and male for the items of access to resources, most of the items are dominated by 'male alone' except for 'extension services' and 'market access' which are dominated by 'female alone'. Access to 'extension services' and 'market' by 'female alone' is a commendable significance of mussel farming SHGs mobilized by women.

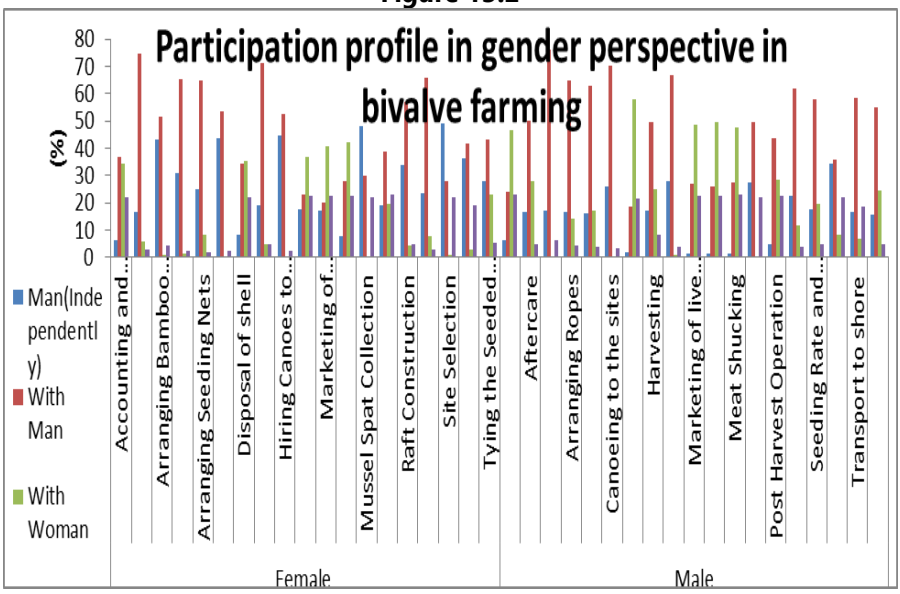
Similarly the participation profile in various activities concerned with bivalve farming is presented in Table 13.12. The gender response in participation in various activities in mussel farming in such as female alone, male **<** female, male **=** female**,** male **>** female and male alone indicated separately by male and female are presented in Table 13.12.

Plate 13.9: Post Harvest operations of Mussel by SHG members

Table 13.12 Participation profile in gender perspective in bivalve farming

Activity	Man (Independently)		With Man		With Woman		Women (Independently)	
	F	M	F	M	F	M	F	M
Accounting and Record Keeping	6.5	6.03	37	24.12	34.5	46.73	22	23.12
Aftercare	16.5	16.58	74.5	50.25	6	28.14	3	5.03
Arranging Bamboo Poles	43	17.09	51.5	76.38	1	0.5	4.5	6.03
Arranging Ropes	30.65	16.58	65.33	64.82	1.51	14.07	2.51	4.52
Arranging Seeding Nets	25	16.08	65	62.81	8	17.09	2	4.02
Canoeing to the sites	43.72	26.13	53.27	70.35	0.5		2.51	3.52
Disposal of shell	8	2.01	34.5	18.59	35.5	57.79	22	21.61
Harvesting	19	17.09	71	49.75	5	25.13	5	8.04
Hiring Canoes to Estuary / Sea	44.72	28.14	52.76	66.83		1.01	2.51	4.02
Marketing of live Mussel	17.5	1.51	23	27.14	37	48.74	22.5	22.61
Marketing of Shucked Mussel	17	1.51	20	26.13	40.5	49.75	22.5	22.61
Meat Shucking	7.5	1.51	28	27.64	42	47.74	22.5	23.12
Mussel Spat Collection	48	27.64	30	49.75		0.5	22	22.11
Post Harvest Operation	19	5.03	38.5	43.72	19.5	28.64	23	22.61
Raft Construction	33.67	22.61	56.78	61.81	4.52	11.56	5.03	4.02
Seeding Rate and Seeding	23.62	17.59	65.83	57.79	7.54	19.6	3.02	5.03
Site Selection	49	34.17	28	35.68	1	8.04	22	22.11
Transport to shore	36.5	16.58	41.5	58.29	3	6.53	19	18.59
Tying the Seeded Ropes to the raft	28.14	15.58	43.22	54.77	23.12	24.62	5.53	5.03
Total	27.2	15.23	46.28	48.77	14.23	22.96	12.28	13.04

Figure 13.2



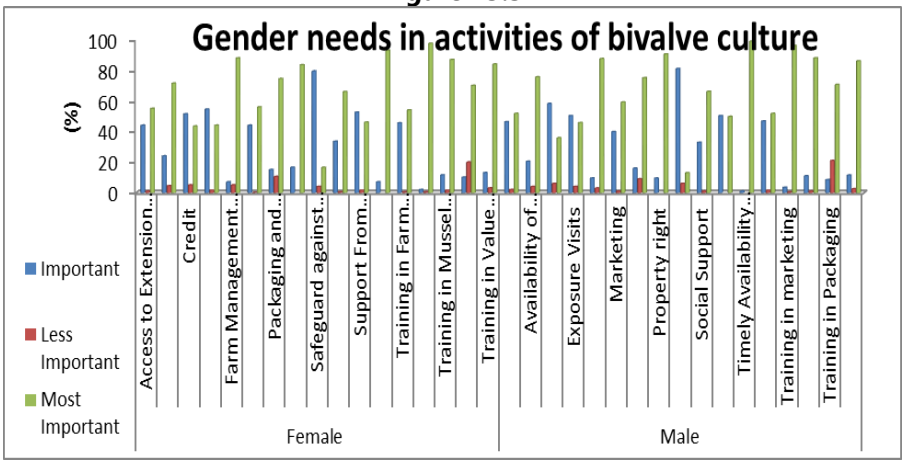
A perusal of the table clearly indicates the participation profile in gender perspective in mussel farming for male and female separately. It can be glanced clearly from the perusal of the table that, the male dominating operations of bivalve farming are after care, arranging bamboo poles and ropes, seeding nets, canoeing to the sites, harvesting, hiring canoes to estuary, mussel spat collection, post harvest operation, raft construction, seeding rate and seeding, site selection, transport to shore and tying the seeded ropes to the raft which are labor intensive as per the responses of both male and female. But the female dominating activities are record keeping, shell disposal, marketing of live mussel, shucked mussel, meat shucking etc. In the same way, response to the gender needs in various activities concerned with bivalve farming of male and female separately is presented in Table 13.13.

Plate 13.10: Socio Economic survey of mussel culture SHGs in Kadalundi

Table 13.13: Gender needs in activities of bivalve culture (n=400)

Need Area	Important		Less Important		Most Important	
	F	M	F	M	F	M
Access to Extension Services	44	46.3	1	2	55	51.7
Availability of Quality Seeds	24	20.4	4.5	4	71.5	75.6
Credit	51.5	58.2	5	6	43.5	35.8
Exposure Visits	54.5	50.3	1.5	4	44	45.8
Farm Management Practices	7	9.45	5	3	88	87.6
Marketing	44	39.8	0	1	56	59.2
Packaging and Transport	15	15.9	11	9	74.5	75.1
Property right	16.5	9.45			83.5	90.6
Safeguard against Unfair Transactions	79.5	81.1	4	6	16.5	12.9
Social Support	33.5	32.8	0.5	1	66	66.2
Support From Counterpart	52.5	50.3	1.5		46	49.8
Timely Availability of Seeds(Quantity)	7	1			93	99
Training in Farm Management	45.5	46.8	0.5	1.5	54	51.7
Training in marketing	2	3.48	0.5	0.5	97.5	96
Training in Mussel Farming Technology	11.5	11	1.5	1	87	88.1
Training in Packaging	10	8.46	20	21	70	70.7
Training in Value Addition	13	11.4	3	2.5	84	86.1
Total	30.1	29.2	3.5	3.7	66.5	67.2

Figure 13.3



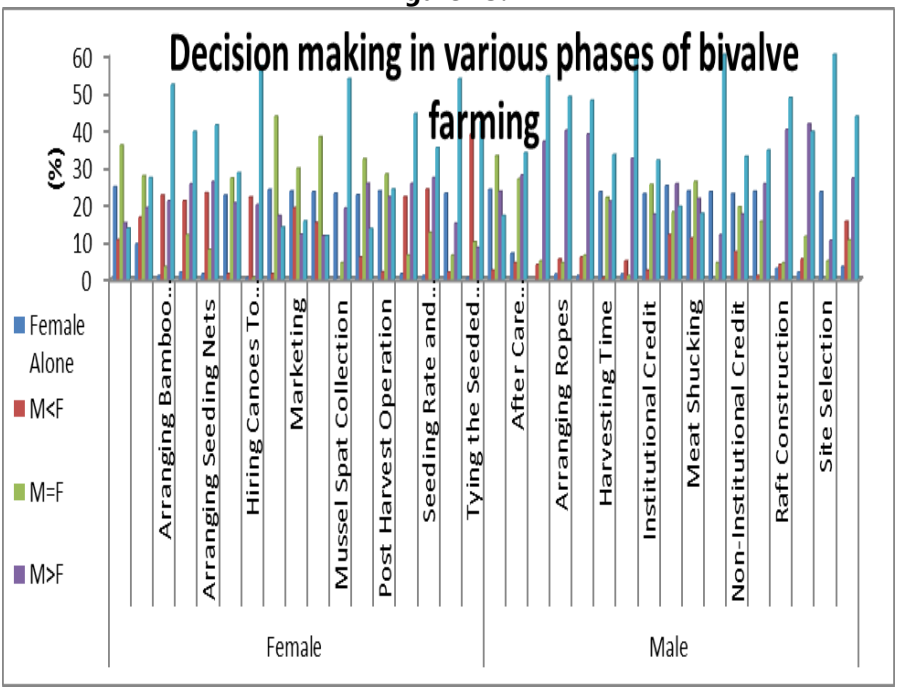
The gender response in need areas in mussel farming as per the importance assigned by male and female counterparts are presented in the table. With regard to the gender needs, the most important need area expressed by both male and female counterparts is training and marketing. As mussel and oyster are highly vulnerable for perishability, marketing of the products is the key for the success of the dynamics of this SHGs. Proper 'training on technical matters' and 'marketing aspects' is inevitable for desirable results. Next important need is 'property right'. Both male and female respondents more or less equally assigned safeguarding for unfair transactions as 'important' category of need area.

Similarly, the extent of decision making in various activities concerned with mussel farming as per the response of male and female separately is presented in Table 13.14 and Figure 13.14. Decision making aspect of fishermen is of paramount significance with regard to marine fisheries sector in the Indian context (Srinath, 1990). The gender response in decision making in various activities in bivalve farming is such as female alone, male **<** female, male **=** female**,** male **>** female and male alone indicated separately by male and female are presented in Table and Figure 13.14.

Table 13.14: Decision making in various phases of bivalve farming

Decision making in Activity Name	Female Alone		M<F		M=F		M>F		Male Alone	
	F	M	F	M	F	M	F	M	F	M
Accounting and Record Keeping	24.75	24	10.61	2.5	35.86	33	15.15	23.5	13.64	17
After Care /Maintenance	9.55	6.97	16.58	4.48	27.64	26.87	19.1	27.86	27.14	33.83
Arranging Bamboo Poles	1		22.5	3.98	3.5	4.98	21	36.82	52	54.23
Arranging Ropes	2	1.49	21	5.47	12	4.48	25.5	39.8	39.5	48.76
Arranging Seeding Nets	1.51	1	23.12	5.97	8.04	6.47	26.13	38.81	41.21	47.76
Harvesting Time	22.5	23.38	1.5	0.5	27	21.89	20.5	20.9	28.5	33.33
Hiring Canoes To Estuary/Sea	0.5	1.49	22	4.98	0.5	1	20	32.34	57	60.2
Institutional Credit	24	22.89	1.5	2.49	43.5	25.37	17	17.41	14	31.84
Marketing	23.62	25	19.1	12	29.65	18	12.06	25.5	15.58	19.5
Meat Shucking	23.35	23.62	15.23	11.06	38.07	26.13	11.68	21.61	11.68	17.59
Mussel Spat Collection	23	23.38			4.5	4.48	19	11.94	53.5	60.2
Non-Institutional Credit	22.61	22.89	6.03	7.46	32.16	19.4	25.63	17.41	13.57	32.84
Post Harvest Operation	23.62	23.5	2.01	1	28.14	15.5	22.11	25.5	24.12	34.5
Raft Construction	1.51	3	22.11	4	6.53	4.5	25.63	40	44.22	48.5
Seeding Rate and Seeding	1.01	2	24.12	5.5	12.56	11.5	27.14	41.5	35.18	39.5
Site Selection	23	23.38	2		6.5	4.98	15	10.45	53.5	61.19
Tying the Seeded Ropes to the Raft	0.5	3.5	38.69	15.5	10.05	10.5	8.54	27	42.21	43.5
Total	13.4	13.61	14.59	5.1	19.16	14.05	19.49	26.96	33.36	40.28

Figure 13.4



It is interesting to note that, the decision making aspect on the various phases of bivalve farming being accomplished by 'male alone' in most of the activities as per the response of male and female without much difference. But the decision making of the activities like accounting and record keeping, institutional credit and meat shucking etc. are equally shared by male and female. But it is seen that, decision making for marketing is a female dominating activity by majority's perception as per the response of both male and female. The table indicates the decision making capability of male and female respondents of the selected households independently being performed in various phases of bivalve farming in Kasargod, Malappuram, Ernakulam and Kollam districts.

Plate 13.11: Gender equity in post-harvest operations in mussel farming in Kadalundi

Problems and constraints of gender in bivalve farming

Mussel and oyster farming faces a number of impediments like water salinity, seed availability, selection of location/site, climatic vagaries, identification of proper beneficiaries and proper monitoring opportunities. The major problems and constraints faced by the women in mussel cultivation in the rank order are unpredictable seed availability, meat shucking problem, marketing of mussel, mortality of seeds during transportation, reduced growth during certain years, social constraints like caste splits, conflicts etc. to a limited extent. Here also, all the group members are of unanimous opinion that the government agencies should come forward with improved marketing facilities as marketing of the mussel was perceived as one of the biggest constraints. Provision of loans with reduced interest rates and freezer facility for storage of harvested mussels can bring about a breakthrough in this sector in the near future.

The consequence of adoption of bivalve farming when accomplished through organised Co-operative Groups of women in North Malabar areas (Kasargod and Malappuram districts), Central part (Ernakulam district) and Southern part (Kollam district) of Kerala state is achieving considerable significance because of its tremendous profitability.

Plate 13.12: Successful groups Muthuchippy and Sagara Rani

Though bivalve culture is being fully grown up to possess the potential to be known as exclusive women based independent enterprise in Kerala, it would be vital to look up on the gender issues in the selection of suitable sites and various operations fulfilling the essential parameters for undertaking bivalve culture trials. An assessment of gender role and gender need is inevitable in this context. It would be pertinent to have a study on the drudgery in bivalve farming trials as well as effect of coir retting zones on growth and attachment of mussel seeds to the strings, which often found by experiences. Laboratory experiments should be broadened to study the effect of coir retting zones on growth of mussel. Similarly, export potential of mussel can be promoted through value addition experiments on depuration plants in filtered seawater. Organised fishermen's cooperatives can play a vital role in various stages of seeding, harvesting, sorting, grading, packing and marketing with an intention of export potential. Irrespective of the location specific problem oriented resource based alternative programmes for income generation, this study emphasizes on the gender need and gender role also ultimately for economic empowerment through bivalve farming as a means of poverty eradication through SHGs. The indicative economics worked out for the oyster culture is presented in Table 13.15.

Table 13.15 Economic Feasibility analysis of Oyster farm

Rack and ren method		Oyster farm		5x5 m
		Ren		
Fixed Cost				
1. Fixed cost (Matrial coast				
Item		Quantity	Rate/unit	Amount
Bamboo poles (16 poles +14 horizontl poles)		30nos	320	9600
Rop (Farm costruction) 3mm		2 kg	250	500
Rope (Ren making)3mm		6kg	250	1500
Total				**11600**
2.Recurrring Cost				
Shell		1500 nos	50 paise	750
Ren making		300 nos	2	600
Farm costruction		2 labours	850	1700
Installation of spat setters		1labour	850	850
Harvesting		4 labours	850	3400
Canoe hire charges		5 days	250	1250
Depuration charges		1500 kg	7	10500
Fuel charges **		1 cylinder	2000	2000
Shucking charges **		105 kg	50	5250
Single oyster declumping		3000	1	3000
Total				**29300**
3. Marketing expense				
Live oyster		3000	5	15000
Heat hucked meat **		105	50	5250
Total				**20250**
	Total financial outlay			
Shell on		3000	20	60000
Shucked meat		105 kg	500	52500
	Profit			
Shell on	**60000-11600-21800- 15000 = 121**			
Shucked meat	**52500-11600-29300-5250 = 6350**			

Conclusion

An attempt has been made to assess the socio economic impact of bivalve farming by mobilizing Self Help Groups in Kasargod, Malappuram, Ernakulam and Kollam areas of Kerala coastal belts. Though bivalve farming is achieving considerable significance because of its profitability, it is inevitable to take care of the selection of suitable sites fulfilling the essential parameters for undertaking culture trials. It would be pertinent to have study on the effect of coir retting zones on growth and attachment of mussel seeds to the strings, which often found to be not suitable by experiences. The consequence of adoption of mussel farming when accomplished through organised Self Help Groups of women in North Malabar areas and South Kollam areas of Kerala state is achieving considerable significance. Export potential of mussel can be promoted through value addition experiments on depuration plants in filtered seawater. Organised fishermen's cooperatives can play a vital in various stages of seeding, harvesting, sorting, grading, packing, and marketing with an intention of export potential. As mussel seed availability is a major constraint, efforts should be initiated for widening the mussel seed production technologies developed by CMFRI on a larger scale.

The study also disclosed the deep rooted influence of Group Dynamics network among the farmer folk and the economic empowerment of rural women through bivalve farming as a means of poverty eradication through Self Help Groups because, poverty can only be alleviated by mobilising the poor to solve their actual problems in the form of organised SHGs. In the impact assessment, the correlation analysis revealed, a proportional relationship between the Group Dynamics Effectiveness and Average Yield obtained for each SHG, which ensures reasonable profit as a major consequence of adoption of bivalve farming enterprise bringing about economic empowerment of fisherfolk through organised Self Help Groups. An thorough assessment of gender perspectives in terms of gender need and gender role in mussel farming in Kasargod and Kollam districts done as a part of the study indicated the gender participation in different activities, gender needs, decision making and access and control over the resources in respect to bivalve farming.

Technology Impact

The bumper harvest results of mussel culture by the women mobilised SHGs had great expectations of SHG enterprise of mussel farming as a major means of Poverty Alleviation, as each SHG in turn ensures economic sustainability of 5 families which in turn led to the local availability of green mussel and local Self Sufficiency of edible mussel products of diversified uses with low cost of production. This has brought out a remarkable linkage with line departments and Kerala State Poverty Eradication Mission.

As the Indian middle class and upper middle class grow there is great scope for tapping this large market by enterprising oyster farmers. As an extremely soft and delicate meat, processed oyster value chain can also be developed both on the domestic and export front. Formal functions for distribution of Sales proceeds as well as different awards such as 'Best oyster farmer SHG', 'Best oyster meat production SHG', 'Best oyster meat marketing SHG' and 'Oyster Value Added Product Unit' award were organized by CMFRI.

Through gender mainstreaming and socio economic empowerment of these SHGs of mobilised women fisherfolk in bivalve farming, the local economic development of Padanna and Cheruvathur of Kasargod, Vallikkunnu of Malappuram, Vadkkekkara of Ernakulam, Thekkumbhagam and Neendakara of Kollam got improved which in turn led to radical development of fishers of Kerala state in a broader sense in the paradigm of economic empowerment of women, where in CMFRI proudly joined hands for economic development of the state, with extreme happiness, commitment and uprightness.

Plate 13.13: Best SHG award presented to Leaders in Vadakkekkara

Plate 13.14: Exhibits of SHGs

CHAPTER 14

Seaweed Farming SHGs

Seaweed culture in Ramanathapuram district of Tamil Nadu coast

"The best teamwork comes from men who are working independently toward one goal in unison." ***James Cash Penney***

In India, cultivation of seaweed, *Kappaphycus alvarezii* was initially started at Mandapam during 1995–1997 (Eswaran*et al.,* 2002) which was initiated by PepsiCo during 2002 and later taken over by AquAgri in 2008 (Krishnan and Narayanakumar, 2010). Many SHG's of women has been formed by the Corporate houses Pepsi, followed by AquAgri (Narayanakumar and Krishnan, 2011).

Experience obtained from experimental and field cultivation of *K. alvarezii* in several Indian coastal areas indicates the possibility of large-scale commercial cultivation and a means of additional income generation for the coastal fisherfolk. Commercial cultivation of *K. alvarezii* was started in 2005 along the Tamil Nadu coast. Now, *K. alvarezii* production is carried out in five coastal districts of Tamil Nadu namely Ramanathapuram, Pudukottai, Thoothukudi, Thanjavur and Kanyakumari.

Figure 14.1 the Map showing the locale of the study

Extent of Involvement in Entrepreneurial Activity by the members like purchase of raw materials, availing extension service, site selection, construction/fabrication of floating raft, seeding, maintenance, harvesting, drying, packing, institutional credit, non-institutional credit and marketing were quantified with structured interview schedule. The study was undertaken in Ramanathapuram district of Tamil Nadu coast where seaweed farming and collection is adopted in larger scale. Moreover, seaweed farming was adopted first in this district .The gender mainstreaming to assess the equity and equality of men and women counterparts of the family were separately interviewed to assess the access to resources, participation profile, decision making aspect and gender need analysis.

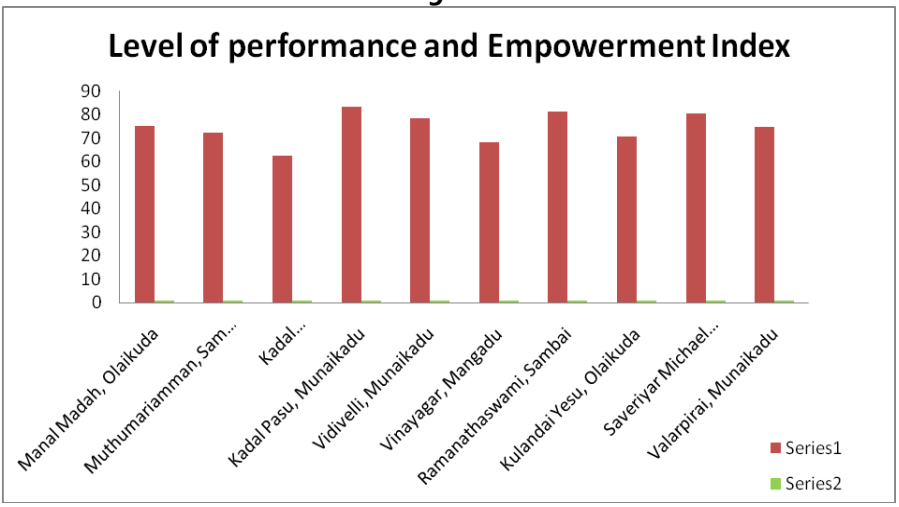
The Empowerment Index and Level of Performance of 10 SHGs were quantified with the standardized interview schedules. (Table14.1).The mean empowerment index was found to be 82.0, which is high in comparison to other enterprises. Indicator-wise analysis revealed that the culture empowerment index (94.5), economic empowerment index (94.2) and social empowerment index (91.5) was very high. The political empowerment index (48.4) was found to be very low. The psychological empowerment index was 81.3. Overall assessment of performance of Self Help Groups on various factors was found to be very good.

Table 14.1: Level of performance and Empowerment Index of selected Self Help Groups

No	SHG Name & Location	Level of Performance	Empowerment Index
1	ManalMadah, Olaikuda	75.2	0.83
2	Muthumariamman, Sambai	72.4	0.8
3	KadalMadha, Ariyankundu	62.5	0.7
4	KadalPasu, Munaikadu	83.5	0.9
5	Vidivelli, Munaikadu	78.4	0.85
6	Vinayagar, Mangadu	68.3	0.77
7	Ramanathaswami, Sambai	81.3	0.88
8	KulandaiYesu, Olaikuda	70.6	0.78
9	Saveriyar Michael Andavar, Olaikuda	80.6	0.87
10	Valarpirai, Munaikadu	74.8	0.82

Plate 14.1 Seeding Kappaphycus for farming by women members in the group

Figure 14.2



The extent of involvement in various phases of the Entrepreneurial Activity was also quantified and expressed in table 14.2 and Figure 14.3. Maximum participation of the members and families was observed during raw material procurement, fabrication of floating rafts and seeding.

Table 14.2: Extent of Involvement in Entrepreneurial Activity

Activity	%
Raw materials	80
Extension Service	25
Site selection	50
Construction of floating raft	85
Seeding	80
Maintenance	60
Harvesting	75
Drying	75
Packing	60
Institutional Credit	45
Non-Institutional Credit	45
Marketing	60

Figure 14.3

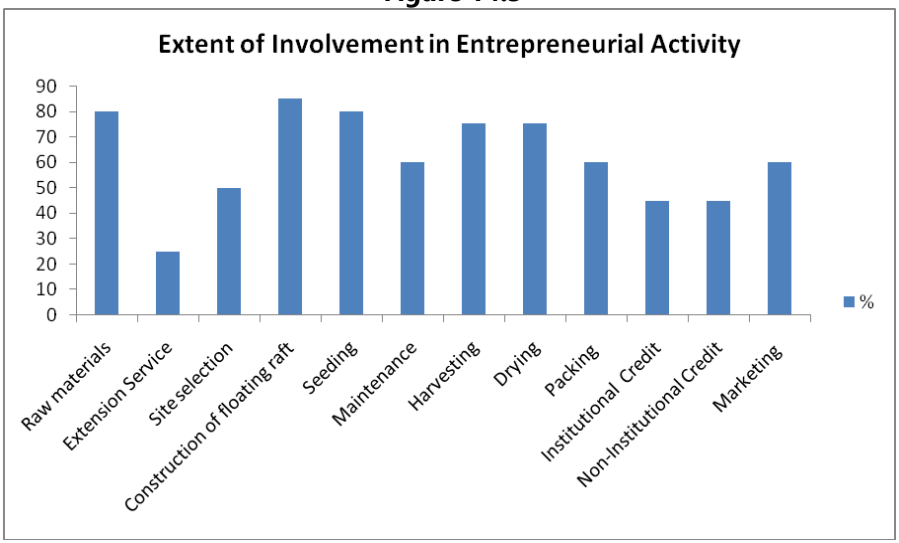


Plate 14.2 Harvesting the seaweed after 45 days

Table 14.3: Access to resources for seaweed culture

Resource Access	Female Alone		M<F		M=F		M>F		Male Alone		No Access	
	F	M	F	M	F	M	F	M	F	M	F	M
Raw materials	0	0	0	0	0	0	0	0	100	100	0	0
Extension Service	0	0	0	0	0	0	0	0	100	100	0	0
Site selection	0	0	0	0	0	0	50	50	50	50	0	0
Construction of floating raft	0	0	0	0	0	0	0	0	100	100	0	0
Seeding	0	0	0	0	60	50	0	0	40	50	0	0
Maintenance	0	0	0	0	0	0	20	10	80	90	0	0
Harvesting	0	0	0	0	0	0	0	0	100	100	0	0
Drying	0	0	0	0	80	50	0	0	20	50	0	0
Packing	0	0	0	0	50	50	0	0	50	50	0	0
Institutional Credit	0	0	0	0	0	0	0	0	100	100	0	0
Non-Institutional Credit	0	0	0	0	0	0	0	0	100	100	0	0
Marketing of finished products	0	0	0	0	0	0	0	0	100	100	0	0
Account and Record keeping	0	0	0	0	0	0	0	0	100	100	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0

An assessment of gender perspectives in terms of gender need and gender role in seaweed farming was also done as a part of the study. All households were selected and male and female counterparts in each household were

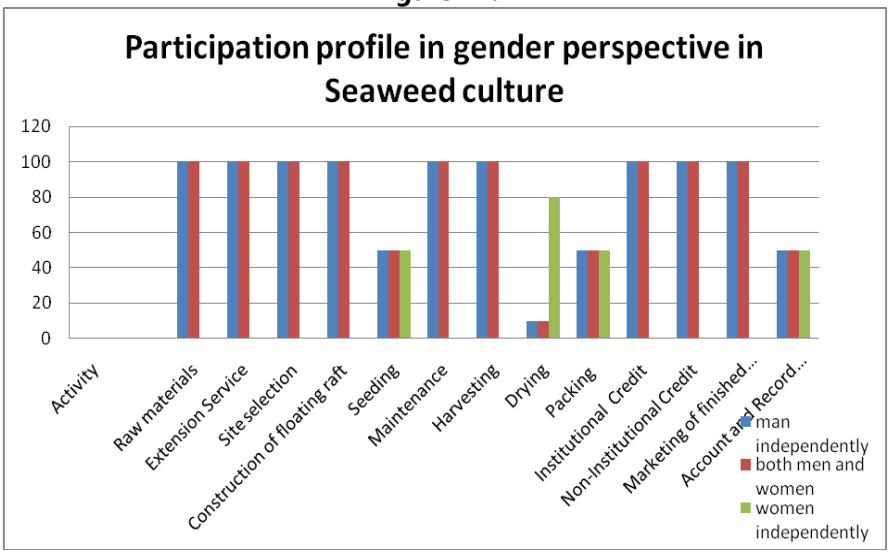
separately interviewed from the selected SHGs. The gender participation in different activities, gender needs, decision making and access and control over the resources in respect to seaweed culture were analyzed. It was found that there is a significant difference on the opinion of men and women in above aspect. The accounting/money transaction, marketing, purchase of raw materials and fabrication of floating rafts are under the control of men. The most important requirement perceived by both men and women are seeding and drying of harvested seaweed. Male and female respondents in a household were separately interviewed for getting the response of gender needs in terms of access to resources, participation in various activities of farming, gender needs and decision making in various stages. The typology access to resources in seaweed culture in gender response such as female alone, male **<**female, male **=** female**,** male **>**female and male is alone indicated separately for male and female respondents (Table 14.3).

It is evident from table 14.3 that, among the responses of female and male for the items of access to resources, most of the items are dominated by 'male alone' except for seeding, drying and packing role which is being performed by male and female together. **>**female and male alone indicated separately by male and female are presented in Table 14.4 and Figure 14.4.

Table 14.4: Participation profile in gender perspective

Activity	Man (Independently)		Men and Women together		Women (Independently)	
	F	M	F	M	F	M
Raw materials	100	100	0	0	0	0
Extension Service	100	100	0	0	0	0
Site selection	100	100	0	0	0	0
Construction of floating raft	100	100	0	0	0	0
Seeding	50	50	50	50	0	0
Maintenance	100	100	0	0	0	0
Harvesting	100	100	0	0	0	0
Drying	10	10	80	80	10	10
Packing	50	50	50	50	0	0
Institutional Credit	100	100	0	0	0	0
Non-Institutional Credit	100	100	0	0	0	0
Marketing of finished products	100	100	0	0	0	0
Account and Record keeping	50	50	50	50	0	0

Figure 14.4



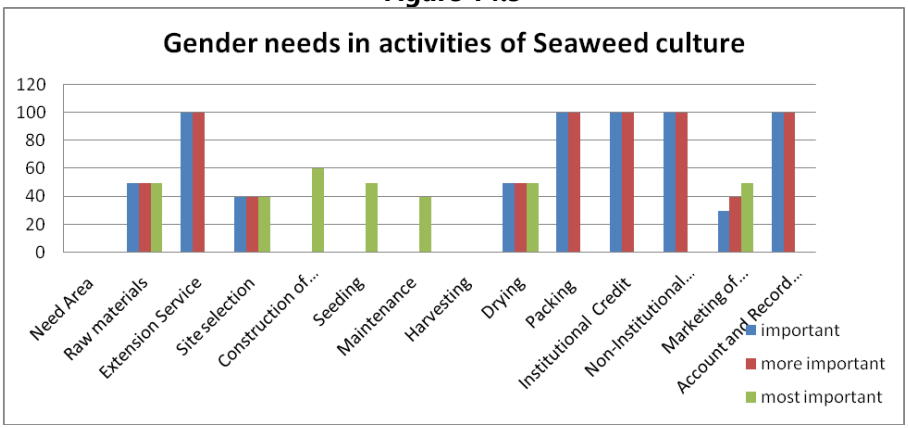
It is clear from table and figure 14.4 that, most of the activities are male dominating operations in seaweed farming, as per the responses of both male and female. But seeding, drying, packing, account and recordkeeping activities are being performed by both men and women.

Table 14.5: Gender needs in activities of seaweed culture

Need Area	Important		More Important		Most Important	
	F	M	F	M	F	M
Raw materials	50	50	50	50	0	0
Extension Service	100	100	0	0	0	0
Site selection	40	40	40	40	20	20
Construction of floating raft	0	0	60	40	40	60
Seeding	0	0	50	50	50	50
Maintenance	0	0	40	50	60	50
Harvesting	0	0	0	0	100	100
Drying	50	50	50	50	0	0
Packing	100	100	0	0	0	0
Institutional Credit	100	100	0	0	0	0
Non-Institutional Credit	100	100	0	0	0	0
Marketing of finished products	30	40	50	30	20	30
Account and Record keeping	100	100	0	0	0	0

In the same way, response to the gender needs in various activities concerned with seaweed farming of male and female separately is presented in Table 14.5 and Figure 14.5. The gender response in need areas in seaweed farming as per the importance assigned by male and female counterparts are presented in the table.

Figure 14.5



With regard to the gender needs, the most important need area expressed by both male and female counterparts includes fabrication of floating rafts, seeding, raft maintenance and harvesting. Other needs are drying, packing, institutional and non-institutional credit, account and record keeping were considered as important.

Plate 14.3 Preparing the raft for floating by SHG member

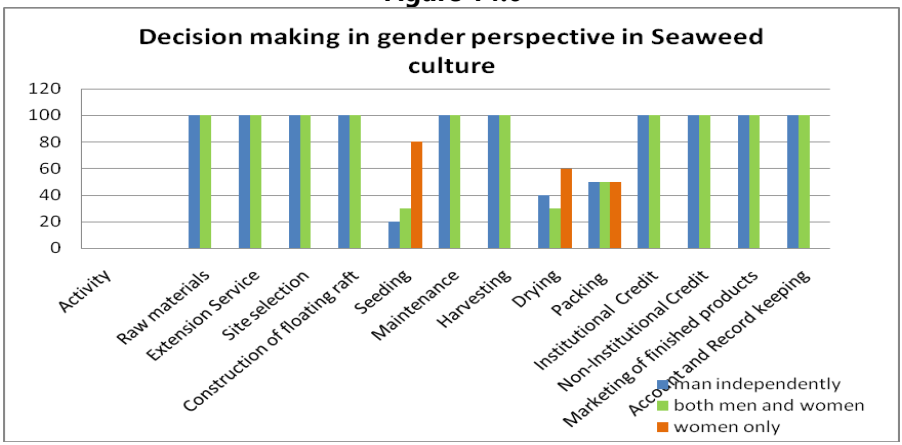
Similarly, the extent of decision making in various activities concerned with seaweed farming as per the response of male and female separately is presented in Table 14.6. The gender response in decision making in various activities in seaweed farming is such as female alone, male **<**female, male **=** female**,** male **>**female and male alone indicated separately by male and female are presented in Table 14.6.

Table 14.6: Decision making in gender perspective in Seaweed culture

Activity	Man (Independently)		Both Men & Women		Women (Independently)	
	F	M	F	M	F	M
Raw materials	100	100	0	0	0	0
Extension Service	100	100	0	0	0	0
Site selection	100	100	0	0	0	0
Construction of floating raft	100	100	0	0	0	0
Seeding	20	30	80	70	0	0
Maintenance	100	100	0	0	0	0
Harvesting	100	100	0	0	0	0
Drying	40	30	60	70	0	0
Packing	50	50	50	50	0	0
Institutional Credit	100	100	0	0	0	0
Non-Institutional Credit	100	100	0	0	0	0
Marketing of finished products	100	100	0	0	0	0
Account and Record keeping	100	100	0	0	0	0

It is interesting to note that, the decision making aspect on the various phases of seaweed farming being accomplished by 'male alone' in most of the activities as per the response of male and female without much difference. But the decision making of the activities like seeding, drying and packing are equally shared by male and female counterparts. Overall the study found that majority of activities in seaweed culture was carried out by male. At the same time some of the activities are equally shared by male and female counterparts. Hence male and female play a crucial role in success of the seaweed farming.

Figure 14.6



The Economic Feasibility Analysis of seaweed farming from 45 rafts is presented in Table 14.7. (A person in a group can maintain 45 rafts) (Total 4 cycles in a year; each cycle is 45 days)

Plate 14.4 Holding the harvested seaweed rope by SHG member

Table 14.7 Economic Feasibility Analysis of Seaweed Farming

S.No	Particulars/Description	2014		2015		2016	
		Quantity Required	Cost per Raft (Rs)	Quantity Required	Cost per Raft (Rs)	Quantity Required	Cost per Raft (Rs)
1.	3-4" dia hallow bamboos of 12'x 12' for main frame + 4' x 4' for diagonals (without any natural holes, crakes etc.,) @ Rs.5.50 per ft of bamboo	64'	352.00				
2.	Five-toothed iron anchor of 15 kg each (@ Rs.50 per kg) – one anchor can hold a cluster of 10 rafts	1.5 kg	75.00				
3.	3mm PP twisted rope for plantation – 20bits of 4.5m each (@ Rs.230 per kg)	420 gm	97.00				
4.	Cost of HDPE braider pieces (20 pcs x 20 ropes = 400 pcs of 25 cm each) (@ Rs.330 per kg)	165 gm	55.00				
6.	Raft framing rope 6m x 12 ties per raft i.e., 36mts of 4mm rope(@Rs.230 per kg)	650 gm	150.00				
7.	Used HDPE fishing net to protect the raft bottom (4m x 4m size) (@ 70 Rs/ kg)	1 kg	70.00				
8.	2mm rope to tie the HDPE net (28 mts) (@ Rs.230 per kg)	100 gm	23.00				
9.	Anchoring rope of 10 mm thickness (17m per cluster of 10 rafts) (@ Rs.220 per kg)	100 gm	22.00				
10.	Raft linking ropes per cluster 10 rafts – 6mm thick – 2 ties x 3m x 9 pairs = 54m length (@ Rs.230 per kg)	100 gm	23.00				
11.	Raft laying charges	-	33.00				
	Fixed Costs in Rs. (Total initial investment per Raft)		**900.00**				

	Variable Expenditure						
1.	Seed material (150 gm x 400 ties @ Rs. 5.00 per Kg)	60 kg	300.00	60 kg	300.00	60 kg	300.00
2.	Braider twining charges		180.00		180.00		180.00
3.	Transportation		150.00		150.00		150.00
4.	Raft maintenance		450.00		450.00		450.00
5.	Miscellaneous expenses		27.00		30.00		30.00
	Recurring Cost (in Rs.)		**1,107.00**		**1,110.00**		**1,110.00**
6.	Interest on fixed cost (7%)		63.00		90.00		90.00
7.	Depreciation		270.00		90.00		90.00
	Total Operating Costs (in Rs.)		**1,440.00**		**1,470.00**		**1,470.00**
	Return Stream						
1.	Annual seaweed production (190 kg/raft)* *(Retaining 60 kg for next crop, total seaweed production from 45 rafts; 4 cycles)*		23,400 kg		23,400 kg		23,400 kg
2.	35 % of total seaweed production is sold in fresh form		8,190 kg		8,190 kg		8,190 kg
3.	Price of fresh seaweed (Rs.per kg)		5		5		5
4.	**Revenue in Rs. (A)**		**40,950**		**40,950**		**40,950**
5.	Remaining 65% of total seaweed production is sold in dried form (15,210 kg will give 1,521 kg of dried seaweed)		1,521 kg		1,521 kg		1,521 kg
6.	Price of dried seaweed (Rs.per kg)		35		35		37.50
	Revenue in Rs.(B)		**53,235**		**53,235**		**57,037.50**
	Gross Revenue in Rs. (A+B)		**94,185**		**94,185**		**97,987.50**
	Total cost of production (Rs.) (Rs.1,440 × 45 rafts)		**64,800**		**64,800**		**64,800**
	Net income (Rs.) (Gross revenue – Total cost of production)		**29,385**		**29,385**		**33,187.50**

The indicative economics of seaweed culture Shown in the above table represent the profitability of the enterprise.

CHAPTER 15

Insights and Future Directions

Insights and Future Directions

A Self Help Group (SHG) is a holistic program of micro enterprises covering all aspects of self employment and unity in a group which led the people of poor socio economic background to the development. It gives emphasis on activity clusters based on resources and the occupational skills of the people and availability of markets. SHG refers to self governed peer controlled group of people with same socio economic background and having a desire to collectively perform common purpose. Here poor people voluntarily join together to save whatever amount they can save conveniently out of their earnings, to mutually agree to contribute to a common fund and to lend to the members for meeting their productive and emergent needs. SHG usually composed 4 to 20 members. The major aims of formation are poverty eradication, empowering women developing leadership abilities among poor people, increasing school enrollment and increase the physical social and economic health of the community.

The fisherfolk community is amongst the weakest and most marginalized communities of Kerala. The women of this community are therefore among the most marginalized in society. The Central Marine Fisheries Research Institute (CMFRI) studied about the impact of SHGs of fisher folk focusing on gender mainstreaming and assessed the abilities, strength and weakness of SHGs and organized farmer interactions for awareness creation and conducted practical training programmes.

Kudumbasree, SAF, Matsyafed, NGOs etc. do have a major role in the mobilization of SHGs in fisheries sector or Kerala. *Kudumbasreee* is a project of Kerala State Poverty Eradication Mission. This project is an offshoot of Swarna Jayanthi Shahari Rozgar Yojana. This mission aims at the empowerment of women, through forming self help groups and encouraging their entrepreneurial or other wide range of activities .Through empowering the women, *Kudumbasree* facilitates the economic development of women and help the team to generate small savings for their families.

Society for Assistance to Fisherwomen (SAF) is an institution registered under Travancore, Cochin., Literary and detectable societies act 1995 to initiate, encourage and strengthen the fisher women in Kerala. SAF helped the women fisherfolk to find new livelihood activities and strengthened economic efficiency. The '*Theeramaithry*" program of SAF helped the economic and gender empowerment of fisher women folk.

CMFRI studied about 750 SHGs running different micro enterprises like capture fisheries, bivalve farming, cage culture, ornamental fish culture, fish feed production etc. The CMFRI team had visited the conspicuous and successful SHGs many times and stage by stage video documentation was undertaken in the various phases of activities. The success case studies elucidated can act as a case model or practical manual for mobilizing SHGs in other allied sectors on a sustainable basis and also produced about 20 short films about these SHGs.

The cage farming in Vembanadu Lake is an economically successful micro enterprise. In this expedition the fisherfolk near Vembanadu Lake have selected pearl spot a tilapia. Cooperation and dedication exhibited by both male and female counterparts of these families were really commendable and was an inspiration for other SHGs.

Another exquisite example for women empowerment by SHGs is the operation of Chinese dip net by women in Kumbalangi. Usually the Chinese dip net is operated by men only. It is for the first time that, these tough tasks are operated by a group of empowered women. It was a viable practical case which can be considered for further propagation by others.

A nonprofit oriented work done by a group of SHGs with the help of ATREE, an NGO in collaboration with Mannanchery Gram panchayath in Alappuzha in the area of biodiversity conservation and sustainable development for protecting our environment and conserving the fish wealth in the Vembanadu lake was a case model on social entrepreneurship as a practical manual for other SHGs.

The SHGs in Pookaitha tell us the story of a group of people who lives in an isolated island who succeeded in wit perseverance on the livelihood avenue

on clam processing. With the help of SAF, the women in Pookaitha Island joined together and formed as 2 SHGs. They collect the clams from the island and nearby places and boil it and separate the flesh from the shell and market it. This earning from Clam processing was a major support for families.

What could be more important than a little something to eat? People love to eat. Food brings people together on many different levels. It is the substance consumed to provide nutritional support to the body. Now a days, people are reaching to pay any amount and go anywhere for delicious and nutritious food. Realizing this, many SHGs have started hotels and cafeterias in various parts of the country. The food kitchens like Amma sea food kitchen in Thrissur, Wayanadu *theeramaithry* food court, Njarakkal and Malipuram aquatorism centers which provide sea food items are some of the successful SHGs running hotels, providing delicious food as a service as well as a mode of livelihood.

The positive side of Amma sea food kitchen is that the fishes used here for preparing food is provided from the near by ADAK farm. That means the customers can have fresh fish. The treatment of SHG members and delicious food items provided here make the customers visit here again and again.

The beauty of Wayanadu forest, boating through Pookode lake, fish spa, fresh water ornamental fish aquarium etc. welcomes the customers of Wayanad sea food court. The customers can enjoy Wayanadu food along with specially prepared sea food items. The customers of Najaraakl aqua tourism centre can experience the boating through canals and they also provide hook and bait for fishing. The customers can enjoy the delicious food for a nominal cost.

The main attraction of Malipuram aqua tourism center is ''fish jump'' or ''*meen chattam*". While doing boating, the visitors will get the opportunity to see the fishes jumping at a height of 1 meter. The SHG members prepare the food without adding any preservative and artificial taste makers. The food provides here gives the feel at home.

Fish is used as food. But in the meantime, it can have so many other uses too. It can be used as a good pesticide and a fertilizer. The fertilizers produced from fish help in the plant growth, fertilization, and flowering and also help in increasing soil fertility. There are so many SHGs who earn money by producing bio-pesticides and fertilizers from fish. 'Prakrithi shree' and 'Jaivasree' SHGs from Engandiyoor are notable for fertifish and 'Jaiva haritha' and 'Karshakasree' SHGs in Elamkunnapuzha are known for fish amino acid. Fertifish is a solid fertilizer and fish amino is a liquid fertilizer. Both are prepared by using fish and other bio products. The SHGs prepare them in a nominal cost with simple effort and is a good source or earning for them with the wholehearted assistance of the grama panchayath, krishi bhavans, NGOs etc.

In addition to Kerala, the study focused attention in other maritime states such as Tamil Nadu, Karnataka, Odisha and Andhra Pradesh. Tamil Nadu took care of SHGs essentially in seaweed culture and Karnataka stressed on dry fish units. Odisha was covered for a variety of micro enterprises like fish seed and bivalve collection. Andhra coast was covered in 3 districts such as Sreekakulam, Vijayanagaram and Visakhapatnam which essentially covered women SHGs engaged in fish marketing.

CMFRI organized farmer interaction training programs followed by intensive gender research focusing on gender analysis, computation of performance level and empowerment index of SHGs, economic feasibility and the success case study elucidation. The socio economic surveys with a pre tested and structured data gathering protocol with standardized scales and indices was done. Extent of involvement in entrepreneurial activity by the SHG members was quantified. Impact of SHGs on gender mainstreaming was assessed based on the equity and equality of men and women counterparts of the families by separately interviewing men and women in terms of access to resources, participation profile, decision making aspect and gender need analysis. The success stories of impact of these fisheries SHGs on gender main streaming documented as movies can be used as a case model and practical manual for mobilizing SHGs in any key areas on a sustainable basis.

Suggestions for Future Directions:

In the course of present fisheries scenario, a concerted effort in the line of gender mainstreaming and SHG development of fisherfolk is a must to improve their efficiency to achieve self-sufficiency and to bring out constant improvement in micro-enterprises for sustaining livelihood. In the future scenario of research, the international implications and network of empowerment dynamics derived out of this study should be defined in the clear cut way for establishing a firm linkage with the research system and extension system. The dimensions and their interrelationships can bring about useful insight in the future research on fisherfolk SHGs and entrepreneurship development.

The factors of Empowerment index contributing significantly have been isolated which can be effectively manipulated to take up action research pursuits, to create SHG models for their development in potential fisheries pockets in the maritime states of the country, to bring about planned development of communication strategies and to strengthen horizontal and vertical linkages as also the forward and backward linkages for effective transfer of technology. The administrators and planners can therefore formulate effective strategies for development using these factors.

The future researchers can think about bringing social action for sensitization on crucial issues like fisher folk's rights and marketing channels including policies and other interventions. The SHGs must have a say in these matters to bring about such social mobilization and social action through mainstreaming the gender perspective.

To get a distinct outlook of the scenario of gender mainstreaming and impact of SHGs, an exhaustive research with larger sample and a wider area involving the fisherfolk of other allied sector enterprises would be of ample scope. Developing the Scalable Business Plans of selected micro-enterprises of SHGs in fisheries and allied sectors covering the indicative economics would be immensely useful for generating replicable models of micro-enterprises appropriate for the SHGs in terms of location specificity, technical feasibility and economic viability. A compendium of business plans of such enterprises would be a practical manual which can be used as a reference material for judicious selection of suitable microenterprises for practical utility and income generation on a sustainable basis.

BIBLIOGRAPHY

Amutha .2011. Socio-Economic Impact through Self Help Groups. *Journal of Economics and Sustainable Development*. ISSN 2222-1700 (Paper) ISSN 2222-2855 (Online) Vol.2, No.6, 2011,Pp 89-94.

Ashaletha, S., Ramachandran,C., Immanuel, S., Diwan, A. D and Sathiadhas, R. 2002. Changing roles of fisherwomen of India : issues & perspectives, In: Proceedings of International Conference on Women in Fisheries.

Asokan.P.K, Vipinkumar.V.P, Appukuttan,K.K,Surendranathan,V.G and Sivadasan,M.P. 2001. Mussel Culture in Backwaters of Kasargod District , Kerala. *Mar. Fish. Inf. Serv. T& E Ser*. No. 169. pp 9 – 11.

Austin, J., Stevenson, H., & Wei-Skillern, J. 2003. *Social Entrepreneurship and Commercial Entrepreneurship: Same, Different, or Both? Working Paper Series, Harvard Business School, pp. 4-29.*

Britta Augsburg and Cyril Fouillet. 2010. Profit Empowerment: The Microfinance Institution's Mission Drift, B. Augsburg, C. Fouillet, PGDT 9: 327-355.

Carolyn Hannan .2003. Gender mainstreaming: Some experience from the United Nations. Gender mainstreaming – A way towards equality Organized by the Swiss Agency for Development and Cooperation Berne.20 June 2003. Pp1-4.

CBCRM Resource Centre. 2003. Sustainable Livelihoods Issues in CBCRM. In *Sustainable Livelihoods in Community Based Coastal Resource management*, Vol 2, San Antonio, Zambales, Philippines. pp 32-34.

Certo, S.T., Miller, T., 2008. Social entrepreneurship: key issues and concepts. Business Horizons 51 (4), 267–271.

Charlesworth, Hillary. 2005. Not Waving but Drowning: Gender Mainstreaming and Human Rights in the United Nations. *Harvard Human Rights Journal* .18: 1-18.

Das, B. K.,Mohapatra, B. C., De, H. K., Chattopadhay, D. N.,Sarangi, N., Eknath, A. E.,Chandra, S., Pattanaik, P., Mallick, A., Swain, D. K. and Ghosh, S. 2011.Women Self Help Group in Aquaculture at Tanar, KendrapadaSadar, Orissa – a Case Study. In: Radheyshyam, Saha, G. S. and De, H. K. (Eds.), Aquaculture Innovators. Central Institute of Freshwater Aquaculture, Bhubaneswar, India. pp 78-86.

Datta,K.S., Chakrabarti, M and Chakraverti, S. 2016. Searching for social entrepreneurship in aquaculture an Indian perspective.Souvenir Pillay Aquaculture Foundation.

Dees. 2001. The Meaning of "Social Entrepreneurship. Duke Innovation and entrepreneurship. Available at https://entrepreneurship.duke.edu/news-item/the-meaning-of-social-entrepreneurship.

ECOSOC (United Nation's Economic and Social Council) in 1997 with GAD (Gender and Development)

FAO State of Food and Agriculture 2010-11 report

Fernando Jude, L. 2006. Microcredit and Empowerment of Women: Visibility without Power. In *Microfinance Perils and Prospects*, edited by Jude L. Fernando. New York: Routledge. pp 187-237.

Gopal, N. and Srinath, K. 2002. A study of women in fish marketing in Kerala. In: Proceedings of International Conference on Women in Fisheries, Kohli, M.P.S and Tewari, R. (Eds.), Indian Society of Fisheries Professionals, SFP, Mumbai.

Gopalakrishnan A. 1996. Role of Women in Indian Shrimp Farming. *Naga*, Vol. 19, Issue 4, Manila. pp16-18.

Hersey, P. and Blanchard, K.H. 1995. *Management of organizational Behaviour* (6th ed.) Prentice Hall, New Delhi. p.345-362.

Immanuel, S., Pillai, V. N. and Menon. 2008. Adoption of oyster culture by women in Kerala. Fishery Technology, 45 (2): 237-242

Immanuel, S, Narayanakumar, R. and Ayyappan, S. 2008. Sustainable alternate livelihood avocations for coastal women in India. Agricultural Situation in India, 65(2):83-88

Immanuel, S. and Srinath, K. 2000. Potential techno - economic role of women in fisheries. *Marine Fisheries Research and Management*.

Jacqui. ,True, J. 2010. "Mainstreaming Gender in International Relations". *Gender Matters in Global Politics*

Jayaraman.R.2008. Performance analysis of fisherwomen self help groups. *Tamilnadu J. Veterinary & Animal Sciences,* 4 (2):52-55.

Kelly, Liz.2005. Inside Outsiders: Mainstreaming Violence Against Women into Human Rights Discourse and Practice. *International Feminist Journal of Politics* .7(4): pp 471-495.

Khader, V., Narayanakumar, R., Lakshmi, J., Dhanapal, K., Kasim, H. M., Sathiadhas, R.andSudhakara, N. S. 2006. Nutritional status and socioeconomic empowerment of fisherwomen in the coastal ecosystem of Andhra Pradesh, Karnataka, Kerala and Tamil Nadu, India. Paper presented at the Global Symposium on Gender and Fisheries, Seventh Asian Fisheries Forum. 1-2 December 2004. Penang, Malaysia

Khader, V., Sathiadhas, R. and Kasim, H. M. 2005. Role of Women in Fisheries in Coastal Eco-System of Andhra Pradesh, Karnataka, Kerala and Tamil Nadu, J. *Res.ANGRAU*: 33(1) pp 53-59

Kirankere and Subrahmanya .2013. Entrepreneurial Finance by SHG se and national productivity. 2013 Pp 150-151

Kohli, M.P.S and Tewari, R. (Eds.), Indian Society of Fisheries Professionals, Mumbai

Kripa, V. and Surendranath, V. G. 2008. Social impact and women empowerment through mussel farming in Kerala, India, *Development*. 51.Pp 199-204

Krishna, G. 2016. Social entrepreneurship. *Souvenir,* Pillay Aquaculture Foundation.

Lewin, K. Lippett, R. and White, R. 1960. "Leader Behaviour and Member Reaction in three social climates", In *Group Dynamics: Research and Theory* (2nd ed.) eds. Cartwright, D. and Zander, A. Evanston, Ill : Row, Paterson & Company.

Lombardo Emanuela. 2005. Integrating or Setting the Agenda? Gender Mainstreaming in the European constitution making process.

Mair, J., Martí, I., 2006. Social entrepreneurship research: a source of explanation, prediction and delight. Journal of World Business 41 (1), 36–44.

Mangheni, M., L. Ekirikubinza-Tibatemwa and L. Forsythe. 2010. Gender issues in agricultural education within African Universities. Gender Background Paper presented at the Ministerial Conference on Higher Education in Agriculture in Africa.

Mansuri. 2010. Microfinancing through self help groups- A case study of bank linkage programme of NABARD. *APJRBM*. Volume 1, Issue 3 .ISSN 2229-4104

Meenu.2008.Women empowerment through microfinance intervention in the commercial banks: An empirical study in the Rural India with special reference to the state of Punjab. 35-45 ISSN: 2229-6158

Mort, G.S., Weerawardena, J., Carnegie, K., 2003. Social entrepreneurship: towards conceptualisation. International Journal of Nonprofit and Voluntary Sector Marketing 8 (3), 76–88.

Nandeesha.,Debashish, K. S., Shirin, M, Zaman, F. and Ireland. 2001. Strategies for addressing gender issues through aquaculture programs: approaches by CARE Bangladesh. p 147-156.

Nandeesha, M.C, 1994. Aquaculture in Cambodia. Info fish International

Ojha, S. N. and Shyam, S. S. 2002.CIFE-Status Paper on women in fisheries. Central Institute of Fisheries Education, Mumbai

Parikh Alka and Acharya sarthi .2001.Impact of Maharashtra's Agriculture Policies on Women Farmers: A Gender Budgeting Analysis, summary. Pp1-3

Pfeiffer, J.W. and Jones, E.J. 1972. *Annual Handbook for Group Facilitators*. Vol.3. Pfeiffer & Company, San Diego, California. p. 19-24.

Reddy R Anu. 2008. Self help groups in India – A catalyst for women economic empowerment and poverty eradication. Pp1-3

Sadangi,B.N., Dash, H.K. and Sahoo Sadangi,P.K. 2007. Gender needs in fisheries. National Research Centre for Women in Agriculture, Bhubaneswar

Sahoo.P.K, Vipinkumar.V.P, Mishra.A.K. and Srinath.M. 2009. *Gender Participation and Gender Issues in Mussel Culture- A Study from Coastal Village of Kerala*. (Abstract) In Compilation of Abstracts of National Seminar on Women in Agriculture organized by International Extension Forum (IEF), Directorate of Research on Women in Agriculture (DRWA) and Research Association for Gender in Agriculture (RAGA), Bhubaneswar. p 25.

Saravanan .2008. Micro Finance and rural development in Tamilnadu, *Kisan World*, Vol. 35. Pp.8.

Sathiadhas, R., Hassan, F. and Diwan, A. D. 2005. Adoption of fishery enterprises and empowerment options for fisherwomen of India. Women Empowerment in Fisheries. Pp 300

Sathiadhas, R., Khader, Vijaya., Hassan, Femeena., Kasim, H. M.,Sudhakara, N. S.,Narayanakumar, R., Dhanapal, K. and Lakshmi, J. 2003. Role of women in fisheries: an overview, Paper presented at the Workshop on Empowerment of Fisher Women. Hyderabad.

Shanti, B., Krishnan,M. and Ponnaiah, A.G.2011.Successful women entrepreneurs in aquaculture sectors- Case studies of Tamilnadu, India. Paper presented at the 30th Global Symposium on Gender and Fisheries.9 Asian Fisheries and Aquaculture Forum.Shanghai, China

Shanthi, B., Krishnan, M., Pillai, S.M., Chandrasekaran, V.S., Vimala, D.Deboral.,Sarada, C. and Mahalakshimi, P. 2006. Globalised aquaculture and gender dimensions: women managers to workers: genesis and growth, Central Institute of Brackishwater Aquaculture.Case Study No. CIBA/SSD/10.Pp16 .

Shinoj.P, George.G, Narayanakumar. R, Aswathy.N, Ramachandran.C and Gopalakrishnan.A .2017. Priorities and Strategies to Boost Incomes of Marine Fisher Folk in India. *Agricultural Economics Research Review,* 30. pp. 205-216.

Short, J.C., Moss, T.W., Lumpkin, G.T., 2009. Research in social entrepreneurship: past contributions and future opportunities. Strategic Entrepreneurship Journal 3(2), 161–194.

Sinha,P.R.V. 2016. Aquaculture and Social entrepreneurship. *Souvenir,* Pillay Aquaculture Foundation.

Siwal .2007. Gender mainstreaming: Gender auditing of various sectors in India.Pp 40-58

Somasekhar and Bapuji .2005.K. Empowerment of Women through Self-help Groups: The Case of DWCRA in Andhra Pradesh.

Srinivasan and Sriram .2003. Micro-finance in India: Discussion. *IIMB Management Review*. pp. 66-86

Srinath Krishna. 1990. Decision Making by Marine Fishermen. Rural Development Review. 9(3&4): 970-974.

Swathilekshmi, P. S. 2008. Factors influencing the livelihood index and level of aspiration of fisherwomen. *Journal of Indian Fisheries Association*. 35: Pp 75-85

Thomas M, Balasubramaniam S and Kandoran M K. 1996.Role Performance of Fisherwomen and the Associated Variables.*Fish. Technol. Soc. Fish. Technol.*, Vol. 33, Issue 1, India. Pp 51-57

UNESCO .2000.GENDER EQUALITY AND EQUITY, A summary review of UNESCO's accomplishments since the Fourth World Conference on Women (Beijing 1995). Unit for the Promotion of the Status of Women and Gender Equality . Pp16.

Vipinkumar.V.P and Baldeo Singh. 1998. Dimensions of Self Help Group Dynamics of Horticulture Farmers. *J. Extn. Educ*. TNAU, Coimbaotre. 3 (1&2): pp 1- 9.

Vipinkumar.V.P and Baldeo Singh. 2001. Correlates of Effectiveness of Self Help Group Dynamics of Horticulture Farmers. *J . Extn. Educ.* TNAU. Coimbatore. 11(2) : pp 2795- 2801.

Vipinkumar.V.P, Appukuttan.K.K and Asokan,P.K. 2001. Mussel Farming by Women's Self Help Groups in Kasargod District – A Case Study. *Mar. Fish.Inf. Serv. T& E Ser*. No.169. pp 4-6.

Vipinkumar.V.P. 2005. Extension of Mussel Farming through Community Participation in Karnataka – A Case Study. In *Proceedings of papers of 7th Indian Fisheries Forum*, Bangalore, India. p 433-440.

Vipinkumar.V.P, and Asokan,P.K. 2008. Mussel Farming Technology Dissemination to the Self Help Groups. *Ind. J. Extn. Educ.* Vol 44: 1 & 2 pp 112-115.

Vipinkumar,V P and Shyam, S Salim .2013. Role of Microfinance on Coastal Indebtedness in Marine Fisheries Sector of Maharashtra, India**.** *Fishery Technology*, 50 (3). pp. 251-257.

Vipinkumar, V.P. and Asokan, P K .2014.Study of Self Help Group Dynamics of Women in Malabar Fisheries Sector**.** *Indian Research Journal of Extension Education*, 14 (2). pp. 25-30.

William .1995. From women in fisheries to gender and fisheries .pp 13-15

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